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TEACHERS COLLEGE RECORD VOL. 49, NO. 7, APRIL, 1948

MAX R. BRUNSTETTER, *Editor*

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VOL. 49, NO. 7 APRIL, 1948

TEACHERS COLLEGE
RECORD

The True Relation of Education to War and Peace*

WILLIAM F. RUSSELL
DEAN OF TEACHERS COLLEGE

How to avert war is the world's top problem. It fazes the United Nations. It frustrates the foreign ministers. It drives man to despair. Coming elections will be decided on this issue. Social institutions, including the schools, are being studied and assessed in relation to their contribution to war and peace.

Teachers' associations ask the persistent question, what can the schools, or other means of education, do to prevent war? That is my topic today. I am not considering what education can do to rebuild or reconstruct the world, or to make a happier life, or to increase productiveness, or to provide better health, or to do anything else, no matter how worthy it may be. I am considering solely the possible relation of schools and other means of education to peace and war.

We, as schoolmen, cannot keep the subject off our minds, because we cannot keep it off our consciences. We cannot but believe that somehow or other schools have something to do with war. In the preamble to the Constitution of UNESCO are the words, "Wars begin in the minds of men." The minds of men are what they are because of the impact of heredity and environment. Much of mental change is caused by environment. Much of environment is education. A good part of education is conscious, the work of schools and other agencies of education such as the cinema and radio.

We know that a pair of identical

*An address given at the annual luncheon meeting of Phi Delta Kappa in Atlantic City on February 24, 1948, and published in the March issue of *Phi Delta Kappan*.

twins, with nearly identical heredity, will vary according to their environment. Place both in Russia and they will support communism. Place both in the United States of America and they will support free enterprise. Place one in one country and one in the other and one will become loyal to America and the other to Russia; and in these two the seeds of war will have been planted.

That is why in educational meetings there is so much interest in education for peace. Each of us wonders what his part is, what he can do, and how best to do it. We hear so much talk. So many suggestions are made. Societies are formed and we are urged to join. Meetings are called and we attend. But no single road is pointed out to us. No one map charts the way. There is no course of action upon which all agree. Just what can we do—you and I? That's the question. That's what we want to know.

There are several schools of thought which I shall sketch for you in quick vignettes—just as the artist draws a cartoon. These pictures will sacrifice completeness to brevity and balanced appraisal to quick impression. I put before you in a general way four programs commonly accepted as central and important contributions of education to avoiding war and keeping peace.

First, there are the advocates of *Educational Reconstruction.* They believe that in a world in shambles, with schools destroyed, teachers dispersed, equipment lacking, children hungry, homeless, and vagrant, you have the situation most favorable for war. War comes from ignorance and hopelessness, when people are desperate because they are ignorant, unproductive, improvident, diseased, and gullible. First, feed the people, clothe them, shelter them, teach and enlighten them; and then they will become self-supporting, self-respecting, and self-governing. Collect the money, books, and equipment. Help to restaff and reactivate the schools. Then you will have a base upon which peaceful attitudes may develop.

I want no one to misunderstand what I am about to say. Within the last twelve months, I have seen some of these ruined communities with their ruined schools. I know the conditions of Houffalize, Bastogne, and Caen. The teachers there deserve our highest admiration. The drives of TICER and the NEA deserve our full support. But efforts of this type have little relation to the work of the school for either peace or war. All that reconstruction does is to open a school and get an educational program under way. Such a program may work toward either peace or war.

When the *Educational Reconstructors* assume that the mere rebuilding of an educational system is a necessary step toward peace, they make the same mistake that the Fathers of our Constitution or the leaders of the French Revolution made when they thought that mere extension of education to all would provide a bulwark for democracy. Jefferson thought that if the people were "enlightened"—that is, schooled—all would be well. But Hit-

ler and Hirohito have demonstrated in recent years that widespread compulsory popular education may be just as effective a bulwark for despotism. No! Reconstruction may bring happiness, self-respect, and general welfare, but whether it brings peace depends on other factors.

Secondly, there are those who advocate the *Interchange of Persons*. Their theory is that war comes from isolation, from ignorance of others. (Do not introduce me to my neighbor, because if I met him I might like him, and I hate him.) Break down barriers. Interchange pupils, students, research workers, and professors. Scandinavian boys and girls are now visiting the Metropolitan School Study Council in New York; Latin Americans visited it last year. Reflect upon the extraordinary results of the educational use of the Boxer Indemnity Fund, which sent thousands of Chinese students to the United States, and of the Rhodes Scholarships. Write letters back and forth; interchange teachers; send thousands under the Fulbright Act. Note the work of the Guggenheim Fellows.

Again, do not misunderstand me. The fact that most American scholars from 1880 to 1900 studied in Germany did not prevent war. Recall that some of the German alumni of the Elsinore International School returned to Denmark as conquerors; and many of the good-will pupils sent by Germany to Norway used their knowledge to betray their benefactors. Even Otto Abetz, Gauleiter of Paris during the occupation, had previously been a good-will fellow to the Sorbonne. I consider, nevertheless, that interchange of persons has great value. Surely it will make for mutual understanding, and frequently, although not always, for good will; but absence of interchange does not cause war, nor will full interchange prevent it.

Then there are those who urge free flow of communication, the *Share the Ideas* school, the work-together advocates, to whom UNESCO is devoting a large share of its money. UNESCO has plenty of money—more money than insight. In the belief that a free flow of ideas is basic to peace, UNESCO has embarked on such projects as the one designed "to preserve the fauna and flora of the Galapagos Islands," the establishment of an Institute to study the Hylean Amazon, and the development of "fundamental education in Haiti." Of $231,319 appropriated under formal agreement with the International Council of Scientific Societies to aid various scientific societies, $10,936 was appropriated to foster "International Zoological Nomenclature" and $11,740 to bring the astronomers together. Plans are being made to send parties of survey experts into various countries upon their invitation.

Again, I hope not to be misunderstood. I am not an opponent of the *Share the Ideas* school. In fact, at Teachers College this is exactly the task that we have been working at for many years. Last fall we had 451 students from foreign lands, including 129 from Latin America and 68 from China. We are committed to the stimulation of the free flow of ideas. I grant that such a flow is valuable for social

betterment, for health, for productivity; but is it, in any sense, a guarantee against war or an insurance for peace? Certainly some former Teachers College students were active enemies of the United States before and during World War II.

Last, there is the *Direct Teaching of International Good Will* school. Prepare books and other curricular materials dealing with peace and international understanding; educate the teachers to carry out work of this sort; and the result will be the international mind and peace on earth. The logic of this position is easily understood. Hitler bent the German schools to war. He taught ideas of world dominance, master race, Aryan superiority, and the beauty and nobility of war. Why not reverse the process? Teach peace, interdependence of mankind, good will. The result is a lot of talking about peace. How many such talks have I heard! In fact, how many such talks have I given! I remember one in Mainz, to a typical German audience, which was most enthusiastically received. The textbooks in Bavaria and Baden in the 1920's oozed international good will.

This school of thought is hard at work again. I am a member of the NEA Committee on International Cooperation. For two years we have been preparing a major work on teaching for peace. The World Organization of the Teaching Profession, with members all over the world, has assigned one-fifth of its appointed task for this year to a similar project. UNESCO devoted a seminar to the problem in Paris last year and will have another one at Lake Success this summer. In Mexico I attended several meetings of the "working party," which was patiently struggling with this problem. I gathered that most of those who participated in these studies had hopes that thereby a real contribution might be made to the direction of education toward peace.

But teachers should know better. They know that such an educational program can contribute to culture, to general education, to learning, and to the dissemination of superior practices and ideas; but to peace, that is something else again. Dewey's students know that moral teaching results not so much in moral conduct as in ideas about morality; that health teaching is likely to yield ideas about health, rather than healthy habits. So it is with the direct teaching of international good will. Some good will may be achieved; but much more likely to ensue are ideas about good will.

These four lines of work are all good; they are worthy of our support because of their possible contribution, not to peace, but to other desirable social goals. Not one of the four—nor all the four put together—chart the course that educators can follow or that schools and other educational institutions can follow in order to avoid war and to keep the peace. They miss the vital point.

What is the vital point? What is the way, if any, in which education can serve the cause of war and peace? To discover this, we should analyze again the situation in Germany and Japan in the period prior to the last war.

In both countries there were flourishing school systems. Nearly everybody went to school. Nearly everybody could read and write. Book sales were high, far higher per capita than in the United States. In Japan you could not stop your ricksha for two minutes without the ricksha boy's picking up his book. Even the handkerchief which he wrapped around his head had a story printed on it. School opportunities were at a maximum. No educational reconstruction was needed.

Both countries interchanged educational personnel. Japan used to send abroad great numbers of students, professors, scientists, and engineers. Germany sent many and received more. Both countries were assiduous in attending international conferences, in importing ideas, and even in assisting at astronomical conventions and helping to standardize international zoological nomenclature. Nevertheless, both were geared to war.

So far as the direct teaching of international ill will was concerned, it is difficult to learn the truth. Hitler certainly forced the teaching of war and hate in the schools, but there is some difference of opinion as to the full effect. So far as Japan up to 1932 is concerned, later visitors agree with my observations in 1918 and 1921 (at a time when Japan was already anti-American and pro-German) that there was no warlike air about the schools, except possibly on the school playground. The schools had an air of kindliness and friendliness, little discipline, and very little martial spirit in a uniform-ridden society.

Nevertheless, both school systems were perfect instruments for war, despite the fact that they were universal, that there was international exchange of persons, international exchange of ideas, and in the case of Japan a not too warlike appearing program. In each case, the educational system did just what the war lords wanted because, first, it turned out the great mass of the people with basic schooling, able to earn a living, and at the same time obedient subjects of the State, looking for orders, ready and willing to do as told, and eager for someone to tell them. In Germany, they were disciplined to be subservient members of the Master State. In Japan, on the other hand, they were trained to be members of a religious sect, artificially stimulated by the government, of which the emperor was God and Japan the chosen land. Second, in Germany, the mass of the people went to one kind of school and the potential leaders to another. These were kept apart from the common people and educated out of sympathy with them. Generally from favored classes, they looked down on the slaves; and even the few cases of emergence from the ranks, such leaders as army sergeants become lieutenants, were harder on the ranks than the West Pointers. In Japan there was less social distinction in the schools; many leaders came from the ranks of the peasants, but they were educated so far out of touch with the people, that they lost all sympathy. Third, schools were purely a function of the State, and the parents had to keep out.

Here, then, are the important ways

in which schools and an educational system work for the warmongers. If you want to bend the schools to war, you do not need to worry much about an iron curtain, or teacher training in patriotism, or revision of textbooks. See that every child goes to school; keep the parents out; make the child obey all the time. Never let him ask a question. Prohibit initiative. Permit no variation. Then train a set of leaders for this mass to obey. Pick them carefully, educate them for invention and initiative, keep them ruthless and cruel and completely devoted. You can do this more easily if you have an artificially created State church as in Japan, or a synthetic religion of Hitler-worship as in Germany. Then you will have a perfect instrument for war.

Jefferson and others of our Founding Fathers thought that you would have good government only if you had a free mind. Remember the words of the Ordinance of 1787, "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and other means of education shall forever be encouraged." But certain kinds of so-called religions, and certain codes of morality basic thereto, and certain kinds of knowledge, taught in a certain way, and certain kinds of schools and other means of education will lead to war. What is needed is the counteractive influence of the free mind, and with this, free religion and the free school. Nations are thought to be dangerous when they have huge standing armies and great military potential; but they are truly dangerous only when either by ignorance the people are naturally subservient to political and religious fanatics, or by the prostitution of their schools they develop a manufactured subservience to cruel leaders. Stanley Baldwin once said to me, "A democracy is that kind of government in which you can have a crazy man at the head and not ruin the people."

If we schoolmen here highly resolve to bend our energies to keeping peace and to averting war, our task is plain. We must keep our schools free, our children free, our leaders free and close to the people, and our parents responsible; and we must use our full efforts to guard these liberties in our own country and in every country on earth.

That is what UNESCO ought to do; but that is precisely what I fear it cannot do, organized as it is. It started in the minds of some teachers; the idea was nurtured during the war by the Council of Allied Ministers of Education. But now it is an agency of governments, and the delegates to UNESCO are government agents. In many nations the schools (and other means of education) have become instruments of national policy, or more precisely put, instruments of the policy of a political party or of a coalition of political parties. These parties determine policy, which the Ministry of Education puts into action.

Most of the delegates to UNESCO in Mexico City had been briefed by their foreign office. Frequently the head of a delegation was a minister or high official of a foreign office. So far as I could tell, there was only one teacher a full delegate, and not more

than a half dozen among the alternate delegates who were primarily in teaching below the college level. What most delegates did at Mexico City had to be approved by some politician at home. For among the delegates were distinguished scholars, scientists, writers, and publicists, men and women of world-wide experience; and yet collectively they seemed so often to miss the point. Why, to add to the illustrations cited above, why allot $31,200 to the International Society of Microbiology, including the International Center of Type-Culture Collections? Why create an intersecretarial Translation Bureau to translate the Classics? Why organize a Youth Service Camp at Cauterets? Why set up a service to facilitate a "widespread understanding of painting," or "an anthology of creative writing under Axis occupation"?

After having supported projects like these, a delegate could face the politicians at home without fear of unhappy consequences. No political repercussions can arise from the preservation of the fauna and flora of a remote island, nor from teaching the ABC's in Africa, nor from the study of textbooks, particularly when it is only in the United States that they are much relied on. Foreign offices will subscribe to big principles and big words; but when it comes to a fight against political domination of the schools, don't call upon the politicians.

You have to call upon the teachers and the parents. Teachers with free minds who are resolved to keep free; teachers who insist on free schools to turn out free men to keep the minds of children free—such teachers cannot be controlled. No ministry, no inspector, no tyrant can avail against them. Neither inspectors, nor Gestapos, nor Quislings, nor Buchenwalds can stay them from their appointed fight. For centuries, teachers in occupied countries have taught contrary to the high command. The classroom is a good place for an underground. If teachers want schools to be free, they can keep them free. But they must have support.

That is why I have such great hopes for the World Organization of the Teaching Profession. Given the initial start by the NEA, now composed of the leading teachers' organizations of some twenty-five countries, at present hard at work—as we in Phi Delta Kappa know from the report of our delegate, Mr. Cook, who attended the meeting in Glasgow—WOTP is an agency of great promise and enormous potential power. It can stimulate the ideas and mobilize the support of the teachers of the world. Plans must be made, tactics must be devised to fan the flame of freedom everywhere. It can learn from its own members where the flame burns bright, and why; from the intimate and accurate knowledge of teachers alone it can tell where it flickers and burns low.

Just as teachers' associations have given powerful support to individual teachers and administrators; just as teachers' associations have walked into disgraceful school situations and have brought the full force of the indignation of our profession and friends of our profession to bear upon recalcitrant and venal school authorities; so

the teachers of the world in world association, from the intimate knowledge within their own membership, can reveal facts, can point out dangerous practices by politicians, and "submit the facts to a candid world." If, by the process of joining together in national associations and showing our indignation, we, teachers, can check politicians within our own land, why cannot similar pressure from teachers internationally organized check warmongering politicians anywhere in the world? That is why we need a Teacher's Charter, as considered by UNESCO. But far more urgently we need an Education Charter.

You and I are members of Phi Delta Kappa. We have sworn to devote our lives to education, particularly through the public school. We must do all that we can to see that these schools serve the cause of peace. Reconstruction is not enough. Interchange of persons, valuable as it is, is beside the point. Free flow of ideas, generally good, can work either toward war or toward peace. Direct teaching is likely to disappoint. We have a different task. It is to work to prevent nations from developing educational programs, under political control, to make slaves of the people. We must work to preserve the responsibility of the parent. We must keep our potential leaders close to and in sympathy with the people. We must keep the schools free.

It is not likely that this task will be accomplished by politicians or financiers or cabinet ministers. It is a job for teachers and parents, individually and as they organize, and with most promise, I think, in one world organization of teachers and parents, if that can ever be attained.

So it is at this precise point, fellows in Phi Delta Kappa, that we must exert our full effort, now and for the rest of our lives, if our schools are to make their maximum contribution to peace.

Principles of Readability Applied to Reporting Research*

RUTH STRANG

PROFESSOR OF EDUCATION, TEACHERS COLLEGE

If research is worth doing at all, it is worth reporting so that it will be read. Evenually it must "get into the minds of men who stir abroad"; it must be readable.

Some investigators stop writing English when they begin reporting research. They have difficulty in getting down to the truth of the matter. They neglect the fundamental principles of composition: coherence, unity, and emphasis. If they apply these and other principles of readability, research workers will more often write and be read.

The principle of appeal. Interest increases readability. If the reader sees that the report has meaning and use for him, he will put forth the effort that effective reading requires. It is the writer's job to make clear the purpose of his research and to suggest applications. In effect, he says to the reader, "Look, this is something new to you; this is something you can do."

The principle of personalization. Application of this principle puts human interest into the report of research. Cases are people. Even after they have been dehumanized by statistical treatment, they can still be used to personalize the report. Here are several ways in which this can be accomplished:

1. The writer can review the previous investigations as a story of other persons' successes and failures, leading up to the need for the present study.
2. He can tell how he collected and treated the data. There is drama in methodology.
3. He can use illustrative cases to make concrete the generalizations which he derived from statistical treatment.
4. He can describe and explain deviations from central tendencies.

The principle of patterning. Every research has a design that should be made plain to the reader. Out of his experience and study the writer has formulated certain hypotheses. These should be stated. He should then describe his plan for testing the hypotheses. The results of his study naturally follow, with their interpretation and the generalizations or conclusions that are warranted. Both the research and

*A paper read at the meeting of the American Educational Research Association in Atlantic City, February 23, 1948.

the report of research should have a design. To write such a report requires a sense of structure of sentences, of paragraphs, and of the chapter or article as a whole. The clear sentence offers to the reader a straight road of thought, with no detours. In research reports we find many examples of "tangled sentences." We also find many incoherent paragraphs and illogical organization of the whole report. If the writer does not have a sense of structure, how can he expect the reader to appreciate a pattern of thought?

The principle of emphasis. The writer should make certain that the reader gets the important points. Too frequently the main ideas are submerged in a welter of words. This principle has been well expressed by a French author: "*L'art de ne pas tout dire*"—the art of not saying everything—at least not in one sentence. This is particularly hard for the meticulous research worker to do because he wishes, quite rightly, to point out all the possible factors that may be influencing his results. For this reason he piles up one limiting phrase and clause after another. The result is that the reader is caught in a thicket of details. What he wants is a straightforward path to comprehension. Research reports are too often cluttered with "it would seem," "it should be recognized," "it was demonstrated," "one might judge," and other roundabout expressions. They are addicted to the passive tense. Translation of this cumbersome kind of writing into terse, active, subject-predicate form would vitalize many research reports.

The principle of dilution. A report of research can be too concentrated. Too great density of ideas makes reading difficult. Brevity may be puzzling. This principle leads to expansion instead of deletion. The writer should space his ideas so that the reader has time to grasp them. What fills the space between main ideas is of the utmost importance. As suggested in the previous paragraph, irrelevant details may detract the reader's attention, while apt illustrations and supporting details build up the main ideas. Research workers often have protocols that they never use to illumine and clarify their main points and lighten the report as a whole.

The principle of plain words. Choice of words is important in making a report readable. First, the writer should avoid empty words—fillers-in that do not carry essential ideas. Second, he should use short, simple, concrete words whenever possible. One measure of readability is the number of prefixes and suffixes per hundred sentences. Flesch[1] says that easy prose does not have more than thirty-one affixes per hundred words. Another measure of difficulty of a passage is the number of unfamiliar words. This is one of the factors used in the Lorge readability formula. The writer should not use technical words with which the reader is unfamiliar when one or two simple root words will convey the thought. If difficult technical words are necessary—and they often are—the writer should use

[1] Rudolph Flesch, *The Art of Plain Talk* (New York: Harper and Brothers), p. 43. 1946.

them in a context that makes their meaning clear, or define or illustrate the word the first time that he uses it if this can be done without breaking the continuity of thought. Sometimes illustrations, charts, diagrams, or tables can be used much more effectively than words to clarify meaning. In these and other ways the author builds up the reader's background of experience so that he can comprehend a new concept.

Profound and technical concepts obviously cannot be written so that anyone can comprehend them without difficulty. But the reader will grasp even essentially difficult material more easily if the principles briefly stated in this article are applied.

Statistical Understandings Every Teacher Needs*

HELEN M. WALKER

PROFESSOR OF EDUCATION, TEACHERS COLLEGE

ALMOST anyone who is enthusiastic about a particular kind of subject matter can advance convincing arguments concerning the advantages which would accrue to the entire civilized world if teachers were required to understand that subject. And he is usually right. The only hitch is our inability to find enough teachers or prospective teachers who have the mental energy and physical stamina requisite for being at one time scholars in the subjects they teach, experts in child psychology and guidance, skilled teachers of reading able to give remedial help in whatever field they may be teaching, individuals well-versed enough in health education to lead their charges into good health habits, participants in public affairs with insight into the meaning of political and economic forces, participants in professional activities and teachers' organizations, devotees of the arts who, by introducing their pupils to beauty, can contribute to the enrichment of their personal lives, well-read men and women who have at least a nodding acquaintance with modern science and the social studies, and who above all this are gracious, happy, relaxed, friendly persons sufficiently unhurried to create an atmosphere in which children can live and develop normally. Doubtless everyone will agree that it is far easier to show *why* a teacher needs to know some particular thing than to show *what* can be eliminated from his course of study in order to make room for it.

I do not intend to tell you that every teacher needs to be a statistician, no matter how idyllic such a situation might seem to me. Rather, I have tried to take account of the multiplying demands upon today's teachers and to ask myself what is the least they can afford to know about the statistical way of thinking; what ideas, primarily statistical in nature, are essential to competent living in the modern world, to competent thinking about that world, to competent discharge of the functions of a citizen therein? The present discussion takes no account of the needs of the teacher who is doing research work, or who becomes a college teacher of education, or who undertakes to read widely in the research literature of a special field. It relates only to the general needs of the

*A paper read at the meeting of the American Educational Research Association in Atlantic City, February 24, 1948.

ordinary classroom teacher as he deals with pupils and meets his responsibilities as an educated citizen.

To a very striking degree our culture has become a statistical culture. Even the dullest person who may never have heard of an index number is affected in intimate fashion by the gyrations of those index numbers which describe the cost of living. Even on the most elementary level it is impossible to understand psychology, sociology, economics, finance, or the physical sciences without some general idea of the meaning of an average, of variation, of concomitance, of sampling, of how to interpret charts and tables. The deliberations of Congress and the state legislatures deal continually with matters in which it is impossible to reach a sound decision without weighing statistical evidence. Perhaps the clearest indication of the extent to which statistical ideas pervade modern life is the use made of such ideas by advertisers. Quoting statistics in favor of almost any product they wish to popularize, making liberal use of graphs, they tacitly assume that the American people are accustomed to thinking in statistical terms, or that if they do not understand they will at least consider a statistical argument incontrovertible.

Individuals who do not feel confident of their own ability to interpret a statistical statement usually resort to one of two extreme patterns, each unsatisfactory to the well-educated man. One of these extremes is the uncritical acceptance of any statement buttressed by numerical data, however fantastic. The other extreme is uncritical suspicion of *all* statistical reasoning. Between these two, the only alternatives would seem to be either dependence upon authority or some comprehension of what statistical reasoning is and on what principles it depends for validity and cogency. One usually cannot depend upon having a satisfactory authority at hand, however, and the person who would make judicious decisions in regard to personal conduct and to public policy will frequently need to base those decisions on information essentially statistical in nature. The conclusion seems inescapable that some aspects of statistical thinking which were once assumed to belong in rather specialized technical courses must now be considered part of general cultural education.

To provide such general cultural education will require undergraduate courses in which applications are made to the whole range of human affairs and in which emphasis is on concepts, logic, sources of data, interpretation, avoidance of common fallacies. The development of such courses in the first two years of the liberal arts college has been recommended by four independent committees which made public their reports during the year 1947. These various committees were appointed by the National Research Council, the Institute of Mathematical Statistics, the Inter-American Statistical Institute, and the Royal Statistical Society of London. The membership of the four committees did not overlap and their very similar conclusions were reached independently.

To implement the findings of these

committees, experimental work on the development of a general undergraduate cultural course in statistical methods has already been begun under auspices which augur well for its success and popularity. But if such a course is needed in the liberal arts college to provide a background essential for work in the social and physical sciences, to serve the future legislator and business man and housewife and agriculturalist and lawyer and physician, it is even more urgently needed in the teachers college. There are serious problems connected with finding teachers for such courses in either the liberal arts or the teachers college, but these are not the main interest in this discussion. Rather, attention is directed to the goals of such instruction, without delaying too long over its obvious difficulties.

Perhaps the most important thing educated persons—including teachers—need to know about statistical method is the uses which can be made of it. Such a course should help the student to find many new interests, to become curious about new problems for which he discovers there is a statistical key.

The ability to read simple graphs and tables is now so widely accepted as an essential part of general education that we need not discuss it extensively. Whereas it is now taught in the mathematics classes of almost every junior high school, twenty-five years ago it was considered technical and beyond the scope of high school work. It is doubtful, however, if even now the teachers who are not mathematics teachers receive enough instruction in this area to make such simple charts as might make their own teaching more vivid. Many teachers still skip all tables and charts in their own professional reading. Here is one of the basic communication skills which teachers especially need.

As to the nature of statistical thinking, educated persons—including teachers—need to know certain things. (1) Statistical method is a sort of telescope which enables one to survey a larger area than can be seen by the naked eye, to comprehend more facts than can be apprehended by direct and personal experience. (2) A statistical statement applies in general to a group but not necessarily to a particular selected individual in that group. (3) Understanding and interpreting a set of data require much more than just making the appropriate computations. Computation is only a step in the logical process. No amount of elaborate calculation can take the place of careful initial thinking about a problem. It is not sensible to make an elaborate analysis of meaningless data. (4) Any generalization to a larger group of an observation made on a smaller group is statistical in nature. A large part of our thinking about the world is of this kind, vague perhaps and often slipshod, yet essentially statistical. There are certain controls which must be exercised over such thinking if it is to be valid.

Educated persons, especially teachers, need some understanding of the universality of human variability. This important statistical concept is still widely and woefully misunderstood.

A norm on a test intended only as a description of central position is interpreted as a standard to which individuals must conform, whether or not conformity benefits them. Parents worry needlessly about whether their children are overweight or underweight, above or below average in any trait on which they can find a published norm. The person who knows only enough about statistical method to acquire an imposing vocabulary sometimes forgets the essential fact of variability and uses a norm like a Procrustean bed on which the lesser individuals are ruthlessly stretched and the giants are tragically amputated. Another related and common fallacy with bad social consequences is the assumption that when the mean of Group A is significantly greater than the mean of Group B, every individual in A is fairly certain to exceed every individual in B. Think of the vast possibilities for mischief inherent in that fallacy. I have heard a college professor of chemistry seriously propose to discourage women from studying chemistry and physics because of the well-known fact that when scores of women and men students in these subjects are compared the women almost always come out with a lower mean. A similar fallacy runs through the thinking of a great many otherwise educated people when they deal with social questions involving a comparison of the sexes, of two races, of two economic groups. If teachers themselves could become so familiar with overlapping frequency distributions that they could help high school students learn to avoid this particular piece of stupidity that would be a result of real social importance.

The approximate nature of all measurement is an important idea for educated people in general, but it is especially important for teachers, who may do great harm to their pupils if they place too literal trust in unreliable measures of those pupils. The inescapable unreliability of measurement can be made vivid even to relatively immature pupils if appropriate experiments are arranged. Over and above the needs of the average person, the teacher needs to have some idea of the meaning of the conventional measures of test reliability and of the qualities to be sought in selecting standardized tests, as well as of methods of determining the reliability of teacher-made instruments.

There is an inexhaustible supply of amusing illustrations of the ordinary person's misplaced faith in the precision of his measurements. The particular episode which has grown gray in my service at this point comes from the days when I taught a high school class in trigonometry. The students had been brought up in the tradition which makes a fetish of complete accuracy and I had spent most of one period trying to blast out their belief that it was a mark of merit to carry computations to a large number of decimal places. Finally, with a yardstick scaled only to the quarter inch I measured the length of a desk with well-worn edges and stated the result as 43.4672 inches. What was their appraisal? It took them no time at all to say I was either bluffing, joking, or hopelessly stupid. The

very next morning in a school assembly the high school principal read the average grade of each member of the graduating class to four decimal places. As a device for reinforcing my teaching the experience was admirable, but I fear it did not enhance the prestige of the principal in the eyes of this class.

Concomitance is a ubiquitous phenomenon but one that is not ubiquitously understood. Anyone who listens attentively for a few hours to conversation on almost any serious subject among a group of college graduates innocent of statistical training can usually pick up a choice collection of fallacies. They confuse concomitance with causation and so propose irrelevant action. They assume that a positive relationship is a perfect relationship. They express surprise that where a high relationship exists some particular individual departs from the group trend. (This particular fallacy may cause a teacher to demand the impossible of her pupils.) They express concern because the offspring of brilliant parents are less brilliant than those parents. They think the child who has the highest intelligence quotient in his class should be expected to stand highest in most other desirable traits and should be censured if he does not excel. Even without the computation of a single coefficient of correlation, the underlying idea of regression could be made clear enough to correct this sort of fallacious thinking.

At the present time nearly every teacher knows a great deal that is not true about the normal curve and uses it in a pseudo-scientific fashion which does no good either to him or to his pupils. It would be a service to replace these erroneous beliefs with something less pretentious and more defensible.

Almost everyone who reads the newspapers is now familiar with the various opinion polls and so has some vague idea that the observation of a relatively small number of randomly selected individuals can in some mysterious way provide information about the characteristics of a vast population which has not been observed at all. This is an exciting idea. Even more surprising to most people is the fact that the sample can also be made to furnish information regarding the value of the population estimates made from its data. To most laymen this sounds like a bit of abracadabra. Yet it is of real practical importance that the layman understand something about the business of drawing samples and making inferences from samples. Few people get through a day without making some sort of decision based upon a sample. The cook samples a pudding to see whether it needs more sugar, the swimmer dips an exploratory toe into the water to sample it for temperature, the physician generalizes about the incidence of a particular malady from the patients he has examined, the parent uses his experience with one or two children as basis for general opinions regarding the probable effect of certain methods of discipline, the businessman tries to project his past experience into the future, the manufacturer examines samples of his product to see whether the process is satisfactory, the legislator must decide upon appropriations

for making studies of unemployment, of agriculture, of cost of living, of the volume of retail sales (and when these studies are made he must understand their implications for further legislation), the teacher uses her accumulated experience with children to guide her in dealing with a new group of pupils, and everyone is continually trying to draw inferences about the behavior of other people from the limited and biased sample of people who have come under his personal observation. The educated person—especially the teacher—needs to become sensitive to sources of bias in any sample on which he is depending for information, needs to know that sampling has become a highly technical business, and that if he plans to make an important study utilizing sampling he must study the pertinent literature or consult an expert, preferably both.

It is an enlightening experience for the student to take part in the actual drawing of random samples from a known population, to see the variability among the statistics, say the means, of these samples, to see a sampling distribution take form, and to learn the import of randomness and the relation of sample size to precision of estimate. After such an experience he is never quite the same, for he has discovered that while variation and uncertainty are universal, yet under the apparent confusion lies a measure of uniformity. There are relationships which dominate the swarming inconsistencies, there are limits beyond which the uncertainty does not pass. The student who has once caught the idea of what a sampling distribution is will ever afterward see a kind of ghostly distribution hovering behind any statistics which may be quoted. Told that a difference is thus and so he will always ask a mental question, "With how much margin more or less?"

Sir Charles Darwin, in his Presidential Address to the Mathematical and Physical Science Section of the British Association in 1938, expressed the hope "that generations will grow up which have a facility that few of us at present possess in thinking about the world in the way which the quantum theory has shown to be the true one. The inaccuracies and uncertainties of the world will be recognized as one of its essential features. Inaccuracy in the world will not be associated with inaccuracy of thought, and the result will be not only a more sensible view about the things of ordinary life, but ultimately, as I hope, a fuller and better understanding of the basis of natural philosophy."

Education and Economic Characteristics

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IN a previous article[1] the present writer examined the relationship between the grade status of children and the rental value of the homes they lived in. This article indicates a few major generalizations which can be drawn from a further census study dealing with the educational attainments of adults classified not only by the rental value of their homes but also by occupation and income.[2] It is impossible in the scope of a single article to reproduce much of the voluminous statistical data presented in the Census volume. Major emphasis will be placed on the generalizations, which are quite important from the point of view of education. All the data published pertain to the following age groups: 18 and 19, 20 and 21, 22 to 24, 25 to 29, 30 to 34, 35 to 44, 45 to 54, and 55 to 64, for each sex and for whites and Negroes by regions. For the most part the variations by sex are of slight significance and except where this is not the case, the data for males only will be used, in view of the fact that more than three times as many males as females are gainfully employed.

[1]"Educational Attainment and Economic Status," *Teachers College Record*, January, 1948, pp. 242-50.

[2]Bureau of Census, *Educational Attainment by Economic Characteristics and Marital Status: 1940* (Washington: 1947), p. 226.

EDUCATION AND HOME OWNERSHIP

It is clear that despite the cultural pattern of home renting in large cities, a vast number of non-farm Americans still own their own homes—nearly 47 per cent of the native white population in 1940. Moreover, home ownership increased with age. For the two oldest groups the ratio of home ownership is 55.7 and 62.5 per cent respectively. It is also clear that the more education a person has the more likelihood there is of his owning his home. In all but the two oldest age groups the proportion of those with high school graduation or better who own their homes is above the average for the age group as a whole. In the two oldest age categories the break comes at grade school graduation or higher. Obviously, these were persons who finished school before World War I, when simpler conditions prevailed. They have also had more time than younger people to acquire their homes. Except for the older groups, 45 years of age and above, the proportion of college graduates owning homes does not show marked variation from the proportion of those who had only one to three years of college education. This may reflect the urban conditions

under which college graduates tend to live. It also seems to indicate that at some time in America's not too distant past high school graduation did open the doors of opportunity as measured by home ownership.

The northern and western regions of the United States conform to the national pattern just stated for native white inhabitants. In the South, however, white people 35 years of age and over who have graduated from grade school, that is, the eighth grade, or those who have had from one to three years of high school education, own their homes in greater numbers than the average of their age group.

As would be expected, the data for Negroes are strikingly different. In the first place, the proportion of this race owning their own homes in 1940 was only about one half as large as that of the white race, 23.9 per cent, though it had risen to 33.6 per cent by April 1947. In the next place, grade school graduation is the critical point for the Negroes everywhere. In every age group those with this much education or more own proportionately more homes than the group as a whole. The poorly educated Negro has even less chance within his own group to achieve home ownership than the poorly educated native white. There are far sharper variations among Negroes than among white people in this particular as the individual goes up the educational ladder. Indeed, in the upper age brackets college trained Negroes own their homes almost as frequently proportionately as similarly advantaged white families.

EDUCATION AND RENTAL VALUE

The owned home, of course, may be a palace or a hovel. The Census therefore compares the actual or imputed rental value of all dwelling places by educational status for the same age groups. In this respect, in all regions the higher standards of the college-trained person stand out, as Table I makes clear. In it the median rental of the age groups which have the lowest and the highest rental value in each educational category are given. Until college years the lowest group is usually the youngest; the highest, the oldest. In the two college categories, however, the younger people often pay more rent than the older. Whether this reflects higher standards on their part or whether an appreciable number of older people possess property in deteriorating neighborhoods, it is impossible to say. In comparing the white and Negro rents, some allowance should be made for the fact that a majority of Negroes still live in the South, and rents are lower there than in the other regions.

It will be noted that the lowest median in one educational group is usually also lower than the highest median of the group just below it on the educational scale. The age factor largely accounts for this.

The Census gives these data by cities of several size groups and for the rural non-farm population. The trend is the same in all six categories, though rural non-farm rents are significantly lower than those of any urban category.

TABLE I

REGIONAL RANGE IN MEDIAN MONTHLY RENTAL VALUE OF HOMES BY EDUCATIONAL STATUS FOR THE UNITED STATES, WHITES AND NEGROES, MALES, 1940*

EDUCATIONAL STATUS	WHITES		NEGROES	
	Lowest Median Rental	Highest Median Rental	Lowest Median Rental	Highest Median Rental
No Schooling Completed	$ 8.86	$12.63	$ 5.51	$ 7.35
1 to 4 years	6.34	13.26	5.48	8.39
5 and 6 years	9.42	18.49	6.80	11.96
7 and 8 years	15.72	26.10	9.42	17.19
High school, 1 to 3 years	16.31	30.77	11.01	18.92
High school, 4 years	23.55	40.49	15.05	21.85
College, 1 to 3 years	33.11	42.68	18.70	23.48
College, 4 or more years	40.88	58.24	20.86	25.14

*Source: Bureau of Census, *Educational Attainment by Economic Characteristics and Marital Status: 1940*, Tables 3 and 5. Washington, 1947.

TABLE II

PROPORTION OF NATIVE WHITES 18 TO 64 YEARS OF AGE IN SPECIFIED MONTHLY RENTAL CATEGORIES BY EDUCATIONAL STATUS

AGE GROUP	COLLEGE GRADUATES		FOUR YEARS OR LESS SCHOOLING	
	Under $10	$50 and over	Under $10	$50 and over
18 to 19	3.0	38.0	63.8	3.6
20 to 24	0.2	47.9	63.4	0.2
25 to 29	0.2	32.2	63.5	*
30 to 34	1.7	61.3	56.8	1.9
35 to 44	1.7	50.9	49.9	2.2
45 to 54	1.7	58.8	39.9	3.8
55 to 64	2.6	56.4	39.4	4.1

*Less than one-tenth of one per cent.

Source: Computed from Table 3, *Educational Attainment by Economic Characteristics and Marital Status: 1940*, Bureau of Census, Washington, 1947. Text statements based on this and following tables.

The Census gives not only the median monthly rental paid but also the numbers in each educational category who pay rents or have an imputed rental value of an owned home falling in each of seven categories from under $10 a month to $75 and over. These data follow the pattern that would be expected from the data on median rents. A startling contrast appears when the extremes are compared. This is done in Table II, where the proportions of college graduates and those having four years or less of schooling (who fall in the highest and lowest rental categories respectively) are given. Nationally speaking and for all age groups, less than 2 per cent of the college graduates live in homes with a rental value of under $10 a month, as against about half of those with four years or less of schooling.

Well over one half of the college graduates have homes renting at over $50 a month as against about one in 50 of those with little schooling.

The significance of this table is better understood when it is remembered that up to the time of the 1940 census half or less of the youth with the mental ability to go to college were financially able to go. Admitting that many who did go and who graduated had superior economic advantages, nonetheless in a nation-wide census involving tens of millions of persons the results indicate that education has an economic value, if amount of rent paid is an index of economic status, as the writer assumes. Again, the urban and rural non-farm results, if separately presented would conform to the national pattern of Table II though with less variation for the latter because rural rents are lower than urban.

EDUCATION AND EMPLOYMENT

The results of the 1940 census still reflect the influences of the depression. The WPA was about to be abolished but at the time of the Census enumeration there were still people doing emergency work or seeking employment. People in these two categories, plus those fully employed, comprised the labor force as defined by the Census. Was education associated with employment? A number of WPA research studies indicated that the better educated individuals were under-represented among their clients, and this national study confirms the conclusion emphatically. For both sexes, and in all but the two youngest age groups, from over 90 to over 97 per cent of the college graduates in the labor force were employed. Those with one to three years of college were only a point or two behind, while those with less than five years of school were often 15 or 18 percentage points lower than the top educational categories. The same result obtained for Negroes above 30, and especially above 35, years of age. Below that the unskilled Negro laborer brought up the proportions of employed among the educationally disadvantaged. The Negro with one to three years of high school in the younger ages in the labor force apparently had more difficulty than those with more or less education in getting a job. The proportions of Negroes employed within the total labor force were below those of the white people in every educational category and the points of difference between the high and low groups were not so great.[3]

EDUCATION AND OCCUPATION

Since the qualifications for jobs differ, the proportions of persons with specified educational backgrounds will similarly differ according to the occupation they follow. Thus, professional and semiprofessional groups have a high ratio of persons with college experience. The census data available on this point give some indication,

[3]No tabulated data are presented on this point, as the generalizations drawn simply confirm other studies. Source data are to be found in Tables 17 to 20 inclusive, pp. 73-102 of *Educational Attainment by Economic Characteristics and Marital Status: 1940*, Bureau of Census, Washington, 1947.

however, of the degree to which this very broad category, including such diverse occupations as those of doctors and actors, is open to other than college graduates. It also indicates the many of the 25- to 29-year-olds are still in the process of completing their education. This is especially true of teachers, who in many states can obtain certification on normal school

TABLE IIIA

PERCENTAGE OF NATIVE WHITE MALES WITH SPECIFIED EDUCATION IN PROFESSIONAL AND BUSINESS OCCUPATIONS BY SELECTED AGE GROUPS*

AGE GROUP	PROFESSIONAL AND SEMIPROFESSIONAL			PROPRIETORS, MANAGERS, OFFICIALS		
	College or More	Some College	High School	College or More	Some College	High School
25 to 29	60.5	15.9	14.3	13.6	16.6	41.1
30 to 34	62.2	14.6	12.8	14.3	16.0	30.3
35 to 44	59.6	13.8	12.0	11.6	13.9	24.4
45 to 54	55.6	15.0	11.8	9.4	11.2	21.3
55 to 64	55.9	13.8	11.5	7.7	9.1	19.0

TABLE IIIB

PERCENTAGE OF NATIVE WHITE MALES WITH SPECIFIED EDUCATION IN FARMING AND CRAFTS BY SELECTED AGE GROUPS*

AGE GROUP	FARMERS			CRAFTSMEN		
	College or More	Some College	High School	College or More	Some College	High School
25 to 29	0.8	3.4	18.1	1.9	6.0	29.0
30 to 34	1.0	3.6	12.7	1.6	4.8	24.1
35 to 44	1.1	2.9	6.5	1.1	3.6	12.8
45 to 54	1.1	3.0	4.2	1.1	2.8	9.5
55 to 64	0.9	2.7	3.6	0.8	2.7	8.7

*Source: *Educational Attainment by Economic Characteristics and Marital Status: 1940,* Table 21, pp. 103ff. Bureau of Census, Washington, 1947.

The differences between the sum of the three items given for each occupational category by age groups and 100 equals the per cent of persons in that occupation with less than high school education.

degree to which nonprofessional occupations have attracted college trained persons. Tables IIIA and IIIB present some of the data on this point for several of the nine over-all categories used by the Census.

Several things are clear from these tables. Except for the youngest group used, the amount of education tends to decline slightly with age. Presumably graduation or even less, one to three years beyond high school. This is the largest single professional group in the United States and the practice of continuing formal education while teaching would influence the data. The increased proportion of college people among the younger business group is noteworthy. The small proportion of farmers with college experience despite

the large number of graduates from agricultural colleges is doubtless due to the large proportions of these graduates who go into professional work in the Agricultural Extension Service, other federal and state agencies, and the colleges themselves. Group by group, those in the Census category of "clerical, sales and kindred workers" run two or three percentage points behind the business group in the three educational categories used. For farmers, operatives, service workers, farm and other laborers, the modal educational achievement is 7 to 8 years.

When the male workers are considered by urban, rural non-farm, and farm residence, the trend is the same as that given. However, the city has a slightly higher proportion of persons with better educational experience; the rural non-farm group has a slightly lower proportion than the national average given above; the rural farm group is sharply lower in the professional category (about 10 points), due again to the status of school teachers.

The trends among women follow those for males but tend to lag behind them, especially with respect to professional service, where the fullest effect of the lack of training of the rural "schoolmarm" is to be seen. But clearly, for women also standards are rising though not so rapidly as for men. Of the 25- to 29-year-old professional and semiprofessional workers 66.4 per cent have had one or more years of college. Over 80 per cent of the clerical and sales workers 22 to 24 years old and over 72 per cent of those 25 to 29 were high school graduates or better in 1940, as against 45 per cent of those 55 to 64 and 47 per cent of those 45 to 54 years of age.

Negroes also conform to the national pattern but lag some points behind in the proportions with college or high school education in the categories normally having appreciable proportions of people so trained. There is little evidence in the Census returns, however, that in 1940 better educated Negroes were being forced into less advantageous occupational categories. There were, for instance, proportionately more whites than Negroes with college experience in the category of non-farm laborers in almost all age groups.[4]

EDUCATION AND INCOME

The 1940 Census gathered data on income from wages and salary. Data of this type had never before been secured. There was some opposition to the question, and in the judgment of the writer not all of the technical problems involved were wholly solved. The year covered was, of course, 1939 when many persons in the labor force had no earnings because of unemployment. The category "None" in Table IV includes also retired persons and housewives. In relating income to educational status, only the groups earning more than $1 and less than $1,000 and from $3,000 to $4,999 and over $5,000 have been chosen. National figures only have been used, though data are

[4]Regional data are given on these items in the Census for both races, but these have not been analyzed.

TABLE IV

PERCENTAGE OF NATIVE WHITE AND NEGRO MALES AND FEMALES 18 TO 64 YEARS OF AGE IN SPECIFIED INCOME CATEGORIES: 1939

INCOME CATEGORY	NATIVE WHITE		NEGRO	
	Male	Female	Male	Female
All groups	*100.0	100.0	100.0	100.0
None	13.5	65.8	14.4	55.9
$ 1–$ 499	19.2	10.8	44.9	32.5
500– 999	20.7	10.5	27.9	6.4
1000– 1499	18.5	4.7	8.0	0.6
1500– 1999	12.5	1.5	1.6	—
2000– 2499	6.5	0.5	0.6	—
2500– 2999	2.4	—	—	—
3000– 4999	2.7	—	—	—
Over $5000	0.9	—	—	—

*Difference between total of percentages and 100 per cent equals the percentage unreported.
— Less than one-tenth of one per cent.

Source: Computed from Tables 29 to 32, pp. 147–68 of *Educational Attainment by Economic Characteristics and Marital Status: 1940*, Bureau of Census, Washington, 1947.

TABLE V

PERCENTAGE OF NATIVE WHITE MALES OF SELECTED AGE GROUPS IN SPECIFIED WAGE OR SALARY INCOME CLASSES BY EDUCATIONAL STATUS

AGE GROUP AND EDUCATIONAL STATUS	ANNUAL INCOME CLASS		
	Less than $1000	$3000 to $4999	$5000 and Over
30 to 34 years			
Less than high school	49.4	2.1	0.2
1 to 3 years high school	32.1	1.5	0.2
4 years high school	22.1	3.1	0.5
1 to 3 years college	17.9	6.0	1.4
4 years or more college	7.8	17.7	3.1
35 to 44 years			
Less than high school	40.2	1.7	0.6
1 to 3 years high school	25.1	4.2	0.9
4 years high school	16.3	8.5	2.5
1 to 3 years college	14.2	12.7	4.2
4 years or more college	6.9	23.9	9.9
45 to 54 years			
Less than high school	38.4	2.6	0.5
1 to 3 years high school	17.0	6.4	1.7
4 years high school	16.6	11.8	4.6
1 to 3 years college	16.3	13.6	6.0
4 years or more college	7.6	21.9	16.0
55 to 64 years			
Less than high school	42.3	2.2	0.4
1 to 3 years high school	30.5	5.3	1.5
4 years high school	21.4	9.6	4.3
1 to 3 years college	15.5	13.5	3.0
4 years or more college	12.9	19.1	13.4

Source: Computed from Table 29, pp. 147 ff of *Educational Attainment by Economic Characteristics and Marital Status: 1940*, Bureau of Census, Washington, 1947.

available for cities of various sizes and for farm and rural non-farm populations. The comparison further has excluded all persons with unearned income.[5] Obviously, these wage data include many persons employed part-time, such as harvest hands, students working only in the summer, and rush season clerks. They do not measure annual wages of the United States labor force in 1939, but the trends as related to education have significance.

For purposes of comparison the proportion of persons in each income category is first given without regard to educational status.

When these data are distributed by educational status, the divergences from the over-all national averages come into sharp focus, as Table V shows. Well over two in five of the nearly three million native white males 30 to 64 years of age who failed to enter high school were earning less than $1,000 in 1939, whereas more than 10 per cent of the nearly 700,000 males who had had a full college education or more exceeded $5,000 in earnings and about one-third exceeded $3,000. Much larger proportions of the better educated also had other income. The data on education and income thus confirm those already given for the rental value of homes occupied, and reinforce the generalizations that are there made.

It would be unwarranted to claim that the better the education the better the income is a generalization which would hold for every individual. The trend, however, is clearly in that direction. The data lend support to the statement that investment in human beings through education brings a significant economic return.

[5] The importance of this may be seen from the fact that, for instance, among the college graduates 55 to 64 years old little more than one third reported only earned income, almost two thirds had "other," non-earned income. Others were obviously earning on a semi-retired basis.

The Reconstruction of Arts in Education

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We can have no genuine civilization in the finer meanings of that term until our extraordinary development in science, technics, and knowledge is balanced by a like development in the arts and a wide distribution of the experience-values inherent therein.—Ralph Pearson, *The New Art Education*, p. 5.

One of the essential ingredients in man's everyday living is found in the arts. The synthesis of feeling, mind, and hand through art activities pierces the richest and deepest stratum of human experience. Arts not only contribute to mere existence; they are the means by which man rises above it. Indeed, without experience in the arts, man's growth is limited and lopsided.

NECESSITY FOR RECONSTRUCTION

Everyone is capable of growth through arts experiences. To some degree, everyone is creative. Through feeling, sensing, imagining, thinking, reasoning, and inventing, people can bring ideas, plans of action, and objects into being. Arts afford opportunities for activities through which people can change their environment, themselves, and their way of life. Failure of our schools to provide opportunities for creative growth through arts experiences is an obstacle to human development, progress, and happiness.

Discerning educators (and they are in an effective if not a numerical majority) verbally but often passively support the arts in education. The measure of an educator today, however, should be in what he is doing. It is a regrettable fact that in many cases well-meaning educators, administrators in particular, do not know what to do. In their professional upbringing they missed many of the opportunities which this discussion will consider. Some teachers and supervisors in the arts "came up" by an outmoded route. The leadership which should flow from our colleges and universities is not generally forthcoming, witness the status of teacher training in the arts in educational institutions in general.

Progress in many schools is undeniably retarded by poorly trained or mistrained art teachers or perhaps by having no art teacher at all. Many art teachers leaving their alma mater are not equipped to contribute to curriculum reconstruction. Hence, concepts underlying arts activities are frequently out of date, inconsistent with significant art values and the way human beings grow. Classroom pro-

cedures in the arts thus continue to fail to make the contribution they should to the over-all program of education.

In some instances art teachers on the job are increasing their usefulness through in-service education of one sort or another. It is a reflection on teacher-training institutions, however, when teachers fresh from the "centers of learning" find themselves inadequately trained for leadership on the job. It is not enough for colleges of education to prepare teachers to carry on prevailing practices. When the student of today leaves the campus for the elementary or secondary school classroom, he or she should have had opportunity to learn the best theory and how to employ it in curriculum development and change.

Fortunately there are some teachers at all levels of education who are able to discard what they have been taught to do. These frontier people transcend the level of education typical of their day. They pull themselves up by their own bootstraps, as it were. Administrative officers should be quick to recognize these leaders and aid them in their struggle to improve the character and quality of learning situations. These people frequently have grasped the significance of modern theory and are able to devise ways to implement it into practice. They are the artist–teachers. But these relatively few changes in the all-round curriculum are insufficient to reconstruct the merry-go-round which goes on training teachers to continue status quo practices which in turn require more recruits.

Every thinking educator knows that one of the most crucial issues in education today is a thoroughgoing reconstruction of the curriculum, not thin wedges here and there. There should be widespread acceptance of modern concepts, new types of organization and procedure. The need for reconstruction in the arts is as great as in other parts of the curriculum.

PLANKS IN RECONSTRUCTION OF THE ARTS

The starting point in a plan for reconstructing the arts is the revision of our ideas about several of their aspects. In the first place, there are many ideas regarding what art is, or should be, in the growth process.

The meaning of art. In art, as in other things, if we are concerned with the development of a person, we must start with the person, not with a subject as such. Art is what happens to a person through an experience—an effective, creative experience derived through the interaction of a person with an art medium or form. Art is a happening in a person usually resulting in a product of some form. The arts are avenues through which a person may feel, think, and participate creatively in his own original and unique way and to his own satisfaction.

As appreciation, an art experience may be listening to music, watching a play, studying a picture, enjoying a dress or an attractively set table, touching a piece of pottery, woodwork, leather, or a myriad of other things for which the person has a feeling and

a growing understanding. As doing or making, it may be designing and painting a picture, writing a piece of music or a play, casting aluminum, singing a song, acting in a play, chipping marble, designing and making a dress or a piece of pottery. Art does something with physical material—the body or something outside the body—with or without the aid of tools and with the aim of producing something tangible, visible, or audible. The medium does not determine what is art and what is not. Painting a picture can be a dull, sterile ordeal or a highly creative experience, depending upon the theory and method employed by the teacher. The same can be said of designing and constructing a table or spinning a bowl. The many types of art activity are expressions of similar creative impulses. They differ because they are created from different materials and under different conditions at different times. The desire to bring order to existence and the will to express ideas and to satisfy desires and needs are the underlying principles permeating them all. As a means of clarifying the view of the student and making it easier for him to cultivate a healthy attitude, the arts should be presented as one large field of human endeavor and opportunity.

Divisions in art media. The archaic divisions between the so-called fine arts, industrial arts, home arts, theater arts, arts and crafts, and the like, each segmented into subjects and subsubjects, are based on false assumptions, values, and objectives. These divisions are wholly imaginary and superfluous. The arts were not separated in early cultures, particularly in Greece where they flourished, permeating the daily living of the citizenry. In primitive cultures, those gone and those extant, the arts were and are integrated. Divisions are rooted more in custom and vested professional interest and expediency than in educational philosophy or the psychology of learning. There is nothing intrinsic in the arts themselves or inherent in the individual to warrant segmentation of the arts or to set them apart from life, as is currently done.

Limitations imposed by division. As an abstract argument, divisions in arts media are not important. But these divisions tend to limit the functions of the arts. Educational theory stresses unity of the individual and the development of the whole person. The democratic process, ideas, interests, problems, and concerns of students are given preference over the mastery of fragments of subject matter. Skills, techniques, and bits of knowledge are superseded by the creative process. Integrating environmental situations is generally accepted, in theory, as a means of developing internal unity. And it is an American tradition that *all* boys and girls should have equal opportunity for growth.

Divisions in the arts run counter to these ideas. Segmentation narrows and limits opportunities for broad creative endeavor. It gives students false ideas regarding the place and function of arts in daily living, particularly in home life, business, and industry. This oc-

curs during adolescent years, when attitudes which will continue into adult life are being developed.

Boys and girls are usually segregated, corresponding to divisions in the arts, limiting the resources and opportunities for all. Usually, it is possible for the student to become acquainted with only a few of the numerous diversified media. Frequently, unhealthy rivalries are stimulated in teachers, students, and parents. To an alarming degree, divisions, the subject approach, and imposition as a method continue to characterize art education.

A point of departure. The subject approach to the arts goes hand in hand with segmentation. Content of the subject generally consists of a list of specifics drawn from an analysis of adult activities. Imposition is the method natural to the subject approach. The student is required to begin with segmented elements rather than with their creative aspects. And all this is at a time when the adolescent longs for a panoramic view of broad horizons.

If ideas, interest, concerns, and problems of students young or old as seen by students themselves (matters relating directly to daily living in school, home, community, industry, and the broad world neighborhood) were substituted for predetermined subject content as a starting point in stimulating the activities, growth through the arts would take on a new vitality. It is natural for the creative mind in the throes of creative activity to reach out and grasp any material which stirs it. Much that is currently stressed as subject content would be drawn upon and employed as dynamic resources in the creative process. Ideas, interests, and problems of the student should be the guide to the selection of media and the perusal of artistic processes. This is the key idea. This limitation is not restrictive. The only inherent requirement in the work of the student is the necessity for sincerity. The student must not copy, fake, or compromise his interests and integrity. In the process of sensing and feeling, designing and creating, imagining and thinking, appreciating and expressing, manipulating and constructing, the student, with one stroke, would wipe away the impractical, educationally foolish barriers and procedures now in his path. More than that, chasms between divisions, into which many art values have fallen and been lost, would yield up their treasures to broaden and vitalize art experiences. Arts media in endless variety could be brought together in a functional arts center, to be drawn upon by students in the process of creative, artistic living. Integration of the arts in school as they are, or should be, in life is a prerequisite in curriculum reconstruction.

Art and craft. Art and craft function together, even in the realm of appreciation. Each has its values. Either may be emphasized appropriately according to purposes and circumstances. Functionally, the two are inseparable.

For purposes of analysis, art relates to the sensory, aesthetic, imaginative, thinking, visionary, ordering ingre-

dients in creative experiences. Craft is the producing part of the process functioning through manipulation and the use of skill, technique, and knowledge. In life's activities the two are fused.

In the educative process, creativeness (art) should be emphasized over craft. Creative qualities and impulses are thwarted through recourse to copying or imitating, imposing adult purposes and standards, overstressing skill and technique, unduly emphasizing the intellectual aspects of behavior, and forcing art activities to emphasize craft as a means of pseudo-integration of art with other subjects.

Teaching, therefore, must beware of the pitfall of emphasizing production based on prefabricated plans of any sort. Good teaching is built on establishing a high standard of human relationships. Democratic teacher–pupil planning, teacher stimulation, suggestion, encouragement, counseling, and drawing out and inspiring the student should necessarily characterize classroom procedure. Teaching, first of all, should be a partnership to which both students and teacher contribute. Traditional, vertical hierarchies thereby swing into a horizontal position in which the integrity and personality of all are respected. Growth through art requires this favorable environment. Indeed, art, freedom of spirit, and democracy have a great deal in common.

Art, aesthetics and intellect. In employing the arts as a means of human enjoyment, satisfaction, and development, a theory is sometimes expounded which would serve to separate emotional and intellectual components of behavior. The purpose that such a view endeavors to justify is acceptable, but the explanation is based upon an outmoded theory of psychology. It calls for a type of behavior that exists only in abstractions foreign to dynamic psychology. Intellectual experience devoid of feeling really does not occur. Conversely, in intelligent behavior there is no such thing as pure emotion. A person no more leaves his intellect behind when he enters an art situation than he ceases to feel when he enters a science or mathematics class.

We have Dewey's word for it that "only the psychology that has separated things which in reality belong together holds that scientists and philosophers think while poets and painters follow their feeling."[1] The difference between emotion and the intellect at any moment in behavior is a matter of where the emphasis falls in the rhythm denoting the interaction of the person and his environment. It is a mistake to assume that a difference in tempo and emphasis is a fundamental difference in kind of behavior. In art, by virtue of the nature of things, the student is more immediately connected with ultimate ends. He does his thinking and feeling as he interacts with his media. He is so close to the objects he is creating that these qualities merge directly into it. In the abstract, scientists or mathematicians usually work

[1] John Dewey, *Art as Experience* (New York: Minton, Balch and Company, 1934), p. 73.

toward more remote ends. But this signifies a difference in tempo of behavior, nothing more. Thinking, feeling, and acting are abstract terms useful in analytic procedures to serve specific purposes, but in reality such elements are never separated at all. There is unity, not conflict, of the aesthetic and the intellectual qualities of behavior. No functional dichotomy can be allowed to exist in reconstructing arts programs. Theory that overemphasizes emotional or intellectual components of arts experiences causes confusion as to the nature of art and is harmful in its effects on art instruction. It unduly restricts the criterion guiding art work and neglects the dynamic intellectual qualities pertinent in art activities. To assume that emotion is the whole of the vocabulary of the arts is as naive as it is damaging.

Integration of arts and other educational activities. Many kinds of activities exert significant influences upon the development of an individual. These activities know no subject-matter boundaries. They flow together naturally if not arbitrarily kept apart. The environment affects the total personality—either for good or for bad. Control the environment and you can shape personality. Integrated learning situations afford the student opportunity to expand his environment and to select and organize his experiences within it on a sound psychological basis. Arbitrarily imposed restrictions tend to warp and sterilize experience. Integration of arts and other educational activities, as ongoing planning and work require, is an adequate means of stimulating and facilitating all-round growth of personality, which, in turn, regulates behavior. These considerations are far more significant than contentions that art deals with one hemisphere of human life and academic subjects with another.

A denial of integration frequently is rooted in selfish allegiance to subject matter, vested interests of pseudo-professional teachers. In other cases it rests upon ignorance, lack of know-how, or inability to work on a horizontal, professional plane with other teachers, students, and parents. Rationalization is substituted for professional interest and action. Many teachers feel insecure, once outside their protective sanctuary. The same people who are content with orthodox divisions between the arts and other subject fields are likely to argue for similar divisions in the arts. They are essentially subject-matter minded individuals. But in reconstructing the curriculum we need not continue to sacrifice zestful living upon the altar of the subject.

Some arts people will defy integration on the basis of the historic "handmaid" bugaboo. If this skeleton should take on flesh and blood it would be because of dominating hierarchial procedures as opposed to intelligent democratic teacher–teacher and teacher–pupil planning. There are pitfalls in integration as a procedure, but it is likely that these are little different from those in procedures along more archaic, traditional lines, and no more difficult to overcome.

RECONSTRUCTION IN ACTION

Suppose that the foregoing is to serve as a foundation for reconstructing the arts in the curriculum, what then? What would be done? What would the functioning arts program be like, what would it require, and how would it operate? Only an incomplete verbal picture is possible here.

Opportunities for all. The school would provide arts opportunities for all boys and girls from the time they entered school until they completed the twelfth grade. The principle that in a broad, diversified, integrated program any individual would find something to his liking would be invoked. Individuals differ regarding what things interest, challenge, and satisfy them. This is as true in the arts as in other parts of the curriculum. But special aptitude need not be a serious problem. What the student omitted in one direction he would get in another. Not a specific activity for all, but several types of arts activity for everyone would be the aim.

Emphasis on general education. A rapidly changing, insecure atomic world has thrust manifold responsibilities upon the younger generation of today. Necessity for helping students grow up with creative, versatile minds, emotional stability, and dynamic attitudes and outlooks serves to throw the spotlight upon general as opposed to vocational education in the American high school.

Functions of industry itself, in a rapidly changing society, are coming to rely upon versatile, flexible employees as opposed to those narrowly trained in relatively few specifics. Given people with creative attitudes and versatile habits, industry can train the individual on the job to perform a specific task quickly and expediently. Obviously, *training as such* is no longer a major function of the secondary school. Current emphasis on *training* for a large portion of high school youth must be superseded by activities designed to improve opportunities in *general education* for all boys and girls.

In the reconstructed arts program, the purpose would be to stimulate personal, emotional, intelligent, aesthetic growth; to give each and every student personal satisfaction in as many media as possible through artistic creative activities. Therefore, artistic creation, invention, experimentation, participation, and functional appreciation on an ambitious scale would characterize work in all aspects of the arts. That the individual (his home, college, economic and social life) is better served would be the underlying assumption.

Cooperative, coordinated arts staff. An arts program built around the concepts expressed in this article starts with a staff whose members cooperatively develop a central principle, a common point of view, and common, consistent purposes and practices. These people would strive day by day to learn better how to bring a unified influence to bear upon the whole complex situation. Specific plans and procedures may vary from school to

school, but the important thing is that there would be a pooling of efforts and resources toward common, intelligible purposes.

Not all qualities essential to initiate and carry out a wide range of work in an integrated arts program need to reside in a single individual. As a group, however, the arts staff would be prepared to meet adequately the demands of any situation in any arts medium. The attributes of each member would supplement those of others. All would be able and willing to work cooperatively. This is the key idea in the functioning of the whole program, and it is chiefly in this connection that the difficulty now exists.

Where can arts teachers with this point of view and with diversified training in methodology and know-how be secured? Colleges and universities are not training them, although they should. Teachers are still being trained to teach subjects—to stress skills and techniques over and above the creative process—rather than to teach cooperatively in an arts workshop or arts center.

But, as mentioned earlier, there are some teachers in service who transcend their training. These alert men and women build their philosophy and method upon the discarded debris of earlier training and experience. They have "bolted the party" and struck out on their own. It is to these people that we would look for leadership. What a challenge to teacher-training institutions!

Space, equipment and supplies. The time is at hand when school architecture must be considered a significant and decisive element in education. If the arts are to function properly and adequately in the program, an arts center is essential. The arts center would be arranged architecturally to facilitate the closest possible relationship of all arts activities, at the same time (through roll-away walls and the like) allowing for expedient rearrangement of space and facilities to meet a wide range of activities. It would be easily accessible from science, social studies, and similar areas. Architecture, organization, color, and light would bespeak art in every possible way. Most equipment would be light, movable, versatile, and safe for boys and girls at various stages of growth.

Supplies would be provided in ever-increasing variety as needed to stimulate and satisfy the creative interests and sincere concerns of students. A direct relationship exists between the kind, amount, and quality of arts equipment and supplies and the kind and quality of education possible. It is not at all uncommon for a dollar spent in arts to contribute more to the growth of a boy or girl than the same amount spent for an academic textbook. Both arts supplies and textbooks are needed.

There would be something to challenge and bring satisfaction to everyone. The arrangement and availability of materials and supplies would be in keeping with respect for the person, his integrity, honesty, and personal dignity. Human relations on this level beget growth through arts. Convenient and accessible arrangement

facilitates activities with a minimum of stress and strain on all concerned. The arts center would "set the stage" for functional growth through a myriad of arts activities in all aspects of daily living.

New buildings should be designed and constructed in accord with the demands of the "modern school." Many school buildings can be redesigned and remodeled to facilitate the changing curriculum. If the basement must be used in overcrowded schools of today, the arts should be the last, not the first, part of the curriculum to be placed there. Administrators and board members are prone to think in traditional basement-arts terms. (The writer has had several teachers come to him with problems of this kind within the past year.) Even an uninformed person, not to mention educational leaders, is likely to know that art and a basement setting are entirely inconsistent. As a suggestion to thinking people, if basement quarters must be used for class purposes, they should be remodeled, employing art as a means, to accommodate some other part of the curriculum.

Time. We have been prone to lose sight of the time factor in education. If the arts are to bear effectively upon personal development, time for them to function must be provided in the program. In many instances, arts activities are narrowed, thwarted and, in effect, sterilized because so little time is allotted them. Unfortunately, traditional program schedules are not in accord with the interests, emotional drives, and satisfactions of students.

Expediency in current arts programs is a curse upon human development. The nature of the individual and the nature of arts experiences are ignored. It is not unusual for the individual to be busy starting and stopping. Work must be started quickly, done rapidly, finished on time! "Projects" must be turned out. The student is assigned a period here and there. He is a slave to a schedule punctuated by the eternal bell. Work is crippled and distorted, and so is the student.

Frustration can but replace potential satisfactions under such an arrangement of the school day. At least 20 per cent of the day should be devoted to the arts, and a ruinous schedule should not be permitted to chop up this time and destroy the effectiveness of the arts by throwing them into conflict with the emotional life of the student. It takes time to grow a human being.

Therefore, blocks of time should be made available to arts just as they are to laboratory work. Regular schedules, flexible blocks of time, free time, and time coinciding with other curricular activities of a core or community nature would characterize the arts program. This latter arrangement would facilitate integration on a broad basis.

Procedure. To achieve educationally significant values, a democratic atmosphere should characterize the arts center; a spirit of responsible, self-directed freedom should prevail. Freedom to imagine, think, and feel deeply and honestly is the tap root of arts activities through which people grow

in richness of personality. Sincerity in behavior is essential to a valid form of creative endeavor.

The collective staff would help groups and individuals initiate work in a variety of ways with emphasis on cooperative planning involving the students, arts staff, other staff members, and laymen. Actually, implementing and carrying through specific activities would employ large-scale individual and small group teacher–pupil planning and cooperation. Free choice, under guidance, would be a central principle.

Sources of arts activities are as broad and complex as life itself. Life in all its aspects, then, is both the root and the flower of the arts in the program. Actually, the arts are a vital ingredient in living. Instructional procedure would make that fact a significant reality in the life of all children and youth.

No teacher can afford to make living through the arts difficult for anyone. Actually, artistic creative participation in the arts is natural and, under intelligent teaching, it is easy. Teachers who make arts activities difficult disqualify themselves. They are lacking in understanding and ability to teach through the arts. In the reconstructed arts program, staff members would assist students in beginning creative work at their level of development, which is where everyone must begin anyway. Each would be encouraged and stimulated to seek satisfaction through whatever medium appealed to him.

Specificity and ruthless drilling of individuals or selected groups of students for purposes of display, performance, and narrow artificial achievement toward any end would be strictly avoided. The arts staff would endeavor to personalize arts experiences rather than standardize them. Achievement would be cooperatively coordinated if by so doing it would serve educational goals. But achievement in the arts can no more be standardized than can wholesome personality.

There is no good reason why students of both sexes and of different ages should not work together. On the contrary, there is much to be gained by such a procedure. The new program would be planned, therefore, to provide for the most flexible kind of scheduling and inter-age groupings. Child groups and youth groups would not only mix within their own age groups, as work required, but would work with more mature students, teachers in training in particular. All ages live in the family unit. And what better place is there for a future teacher to learn than with those with whom he or she will later work? This does not necessarily mean practice teaching, although it may include that. The proposal here suggests that college students, in the arts or in other areas, who are preparing to teach, work along with younger students as a part of their regular course training.

Evaluation. The above by no means signifies indifference to standards of growth; quite the contrary. The primary purpose of reconstructing the arts program is to improve and ad-

vance the effectiveness of arts experiences toward the attainment of valid goals. In the program under discussion every student would be responsible to himself, his group, and the staff to work with as much concern and sincerity as possible.

The individual's work and achievement would be evaluated in a manner consistent with his stage of development and his own purposes. Purposes would be set cooperatively by him, his group, and the staff. But it would be remembered that the only purpose anyone can work to fulfill is that understood and accepted by the person himself. Standards, like all other aspects of the process, would be personalized.

The matter of credits and accrediting would also be revised. Valid growth through artistically creative activities cannot be graded or marked in the orthodox way. And the more significant art activities are, the less such types of evaluation can be employed. If marks are used, students tend to work for them. Such an attitude on the part of students violates fundamental purposes in education, for marks are false goals. Most aspects and degrees of success, or lack of it, in the arts are audible or visible. No traditional supports in the way of marks are necessary.

As for reporting, corporate judgment and statements about developing qualities and characteristics are far more meaningful and valid than marks. Credits, if needed, would be given on a *time* basis as a substitute for standard of achievement.

Budget. To bring the impact of the arts upon the growth of a generation of young people requires more money than is now being spent on arts education. At present America spends relatively little for public school education—about 1.5 per cent of her national income. Great Britain spends twice as much, Russia almost six times as much. As a nation we spend about 6 per cent of our income for liquor and tobacco. To finance the kind of arts program discussed here may require that we divert to it some of that 6 per cent.

This article is concerned with a *reconstructed* arts program, however. Much that is spent now for so-called vocational education in certain aspects of the arts on the secondary level should be diverted into channels of general education for all students. Even so, more space, equipment, and supplies are needed. More and better trained teachers are required. But, assuming that no more money is available than is now used in the arts, much could be gained by using it toward the type of arts education herein discussed. In general, it costs more to do less through disintegrated, segmented curriculum practices. Manpower, space, and equipment go further when employed on an integrated, cooperative basis.

Conclusions. The foregoing statements are necessarily brief and incomplete. Implications (for all levels of arts education and for teacher education in particular) resulting from them and others that should be noted are many and bespeak of drastic change. These proposals are not believed to

be fantastic, however, since the author and others have made some progress along these lines during the past several years. Sound psychology and educational theory as well as the salient nature and function of the arts themselves undergird the ideas and suggestions incorporated herein.

The idea and purpose back of curriculum reconstruction is to improve the development of our greatest and most precious resources—our children and youth. This task is a challenge to any teacher–educator. Time should no longer be wasted and energies dissipated correcting relatively minor flaws here and there. Age-old boundaries and rivalries should be allowed to fall in decadence as befits them. Upon these ruins should be built the new curriculum. Cooperation as well as leadership is imperative for this task, which is as stupendous as it is important.

Preparing Teachers for Driver Education

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WHEN a significant social problem arises whose ultimate solution lies in educable factors, it may be expected that sooner or later those concerned with the problem will seek assistance from the schools of the nation.

Many individuals, agencies, and organizations in this country are vitally concerned with the fact that few of us will live through the coming year without having a friend, relative, or neighbor killed or injured in an automobile accident. In this era of astronomical figures, to cite over thirty-four thousand killed and one million injured last year by automobile accidents does not reveal the true picture of economic loss, social distress, and human suffering which our highway accident tolls exact. Yet, in terms of economic loss alone, more money was dissipated last year in this one destructive channel than was spent for the support of our entire public school system.

While the social significance of the automobile accident rate may be overlooked by some, various educational, commercial, governmental, and social service agencies are actively engaged in forging weapons for the "battle of the highways." Their efforts have been directed toward improved safety devices on automobiles, traffic and highway engineering, law enforcement, driver licensing practices, and public education. Considerable progress has been made in these directions and continued improvement can be expected. The fact remains, however, that most traffic accidents are caused not by poor roads, poor enforcement measures, lack of knowledge of rules of the road, or mechanical failures of automobiles. Rather, most accidents are caused by poor drivers.

Recognition of the fact that if the accident rate is to be reduced significantly the problem of producing better drivers must be attacked has given rise to the movement to introduce driver education into the secondary school curriculum. The secondary school is considered an ideal place for driver education because, first, it reaches youths at an age when they initially seek to drive; second, it reaches the teen-age group, which has the worst accident record, those under twenty having an 89 per cent higher accident rate than all other age groups; and third, it has the best resources for providing necessary instruction.

WHAT IS DRIVER EDUCATION?

Driver education aims to develop the necessary attitudes, habits, and skills which in practice will result in efficient and safe operation of automobiles. Driver education must necessarily be concerned with such factors as the role of the automobile in our society; social responsibilities of driving, with special emphasis on the development of proper attitudes toward safe driving; physical and mental requisites of safe driving; problems of traffic safety; traffic laws and regulations; construction, operation, and maintenance of automobiles; and skills of driving. The practice in some schools of presenting only the classroom phase of driver education, omitting the actual behind-the-wheel training or learning to drive an automobile, has given rise to a duality of terms. In general use one finds the terminology *driver education* and *driver training*. Driver education denotes the classroom phase of instruction; driver training the behind-the-wheel phase. This definition cannot be defended in terms of a broad concept of the word education, but it is used here in recognition of its widespread general acceptance.

Not a little value can be claimed for offering courses in driver education without including driver training. Nevertheless, if the basic problem of reducing our highway accident toll is to be touched, driver training must be an integral part of programs of driver education in the secondary schools.

THE STATUS OF DRIVER EDUCATION AND TRAINING

When the multiplicity of problems associated with the establishment of driver education and training courses in secondary schools is considered, the first impulse is to say it cannot be done. Who will teach it? Are automobiles available? Will parents approve? Will it cost too much? How can it be included in an already overcrowded curriculum? These questions pose only a few of the practical problems that arise. Yet despite the difficulties, over eight hundred and fifty secondary schools in this country have courses in driver education and training. With the increasing availability of automobiles since the close of the war the number of schools offering these courses is rapidly growing. The New York State Education Department has recently urged the inclusion of driver education and training in the State's secondary schools. Regents' credit has been allowed, and a State syllabus has been published. At least thirty other states[1] give some types of encouragement to secondary school driver education and training programs through laws, regulations, or recommendations. These include: (1) permissive legislation or regulations regarding the establishment of driver education and training programs; (2) state courses of study; (3) the waiving of oral or written or practical driving tests for a state driver's license on suc-

[1]American Automobile Association. *State Regulations of Safety Education in the United States.* Washington, D. C., 1947.

cessful completion of a secondary school driver education and training course; and/or (4) the provision of state supervisory personnel to assist with the development and promotion of local driver education and training programs.

SUPPORT FOR THE PROGRAM

The chief impetus to the development of driver education and training programs has come from such private agencies as the American Automobile Association and its affiliates, the Automotive Safety Foundation, the National Conservation Bureau, and the National Safety Council. These private agencies have provided teaching aids, equipment, materials, and the promotional, supervisory, and advisory services of trained personnel. Programs and materials developed are based upon well-conceived objectives; sound teaching materials, progressions, and techniques; high standards of achievement; and carefully devised evaluative procedures. Resources available for those initiating courses in driver education and training are invaluable.

Educational organizations have given wholehearted support to the efforts of private agencies. They accept the fact that secondary schools are the best equipped educational agency to deal with the problems of youth, and recognize the needs of youth in the area of driver education and training. The National Commission on Safety Education of the National Education Association is actively engaged in promoting the movement. Driver education and training has been recommended and urged as an essential program by the National Congress of Parents and Teachers, leading educators serving on the Committee on Education at the President's Highway Safety Conference of 1947, the American Association of School Administrators, the National Association of Secondary School Principals, and others.

NEED FOR TRAINED TEACHERS

The administrative feasibility of introducing driver education and training into schools cannot be lightly assumed. The difficulties, however, prove not insoluble. Dual control automobiles are available by loan, rental, or outright purchase. Services offered by the American Automobile Association and various private motor companies facilitate the procurement of proper equipment. The cost of conducting the course, including teacher salary, materials, car operation, insurance, and the like, is estimated at less than thirty-two dollars per student trained, according to budgetary plans set up by the American Automobile Association. Other administrative problems involved can be readily handled by an individual trained in the area.

Actually one of the chief deterrents to the establishment of driver education and training programs is the shortage of adequately trained teachers. Training in administration of the programs and the subject matter is of course necessary. In addition, only carefully selected and well-trained teachers are capable of teaching driving skills. The greatest pitfall lies in the

tendency of almost everyone who drives to believe he is a *good* driver. There is no effective way to convince him otherwise. Anyone, however, who has received instruction in the fundamentals of operating an automobile from an expert instructor cannot but be amazed at the many habits of the average driver which are mechanically harmful to the automobile and potentially unsafe. An untrained teacher selected from the ranks, even though he has a record of safe driving, is likely to pass on to his pupils basically poor driving skills. Any teacher engaged in this work *must* be properly trained and highly skilled according to acceptable standards.

PRESENT TEACHER-TRAINING PRACTICES

The majority of teachers now engaged in driving education and training have been prepared by the American Automobile Association. The influence and contribution of this organization in the field cannot be overestimated. It has been unflagging in its efforts to establish institutes in cooperation with local colleges throughout the country for the purpose of training teachers in service through short intensive courses. It has similarly promoted seminars for college instructors who wish to include driver education and training courses in teacher-preparation curricula. Attendance at AAA courses has been stimulated by the fact that the Association's dual control automobile procurement services are available to only those schools that have an instructor certified by the organization. Certification may be obtained only by attendance at an in-service course conducted by its representatives or a regular college course conducted by an AAA trained and certified instructor.

Other institutions, notably the Center for Safety Education of New York University, with the cooperation of the National Conservation Bureau, have for several years included driver education in their curricula.

THE RESPONSIBILITIES OF TEACHERS COLLEGES

The private agencies have effectively pioneered in the field of driver education and training and have maintained relatively high standards of teacher preparation. The recognition by teachers colleges, however, of the growing importance of this field and of their considerable responsibilities thereto is necessary. With an increasing number of secondary schools adding driver education and training to their offerings, it is only logical that institutions preparing secondary school teachers should assume the added function of preparing teachers who will be adequately equipped in this area.

Step I: Selecting a qualified staff member

The first step for colleges in developing teacher-preparation programs in driver education and training is to prepare or procure staff members qualified to teach driver education and training. Opportunities for college personnel to receive preparation are increasing. During the spring of 1948,

for example, four colleges and universities in different sections of the country, with the technical assistance of the American Automobile Association, are conducting seminars for the preparation of college instructors in driver education and training. These include: University of California, University of Illinois, George Peabody College for Teachers, and Teachers College, Columbia University.

The college instructor in driver education and training must be carefully selected. In addition to the generally accepted criteria for a good college teacher, special qualifications are important. The individual selected must be able to meet the physical requirements necessary for an expert driver and instructor. That he can measure up to superior standards of vision, coordination, reaction time, and driving skills is essential. In addition, a high degree of emotional stability is required of the instructor who undertakes the exacting task of behind-the-wheel instruction. He must also be able to teach the subject matter of driver education, which correlates in many respects with the field of industrial arts. Specialists in that field are likely to have the technical knowledge and skill necessary for effective teaching of subject matter related to automotive equipment and for constructing and operating the various psychophysical testing devices commonly used in driver education. Specialists in safety education likewise have a good background of preparation in many ramifications of the field. Personnel from the field of physical education are sometimes selected because of their expertness in the teaching of motor skills. Regardless of field of specialization, however, the individual best qualified in terms of physical abilities, emotional stability and technical background should be selected.

The immediate need for trained college personnel in the field of driver education and training dictates the present practice of short-term, intensive in-service courses. Careful selection of those who are to take the training enhances the worth of this system. It is important that it be recognized, however, that this type of training is not wholly adequate. Graduate or undergraduate preparation in teacher education with proper emphasis in such fields as mechanical arts, psychology, sociology, political science, and safety education and engineering would characterize an adequate background for the administrator or teacher of driver education and training in teachers colleges.

Until a college has staff members adequately prepared to carry on the program of teacher preparation in driver education and training, the services of the several private agencies should be sought in offering short term courses to meet the immediate needs of local secondary schools.

Step II: Developing the program in the local college

Once a trained staff member is available, plans for developing the driver education and training teacher-preparation program in the college can be advanced. Varying local demands pre-

clude a definite blueprint for the development of teacher-preparation curricula for all colleges. Nevertheless, certain basic considerations should guide the programs developed, though the administrative details will vary for each institution.

1. *Initial efforts should be directed in terms of time, content, and selection toward the in-service group.* The demand for in-service training will be considerable in the next few years because of rapid growth of the driver education and training movement. Until the demand and the extent of pre-service offerings in driver education and training articulate, there is need to offer training for teachers already in service. This means that short term, Saturday, late afternoon, or summer courses accessible to the full-time teacher should be provided.

2. *Those selected for preparation as teachers of driver education and training should meet the professional requirements of other secondary school teachers.* The present practice in some school systems of placing such individuals as the school bus driver or a local police officer in charge of driver training is both educationally unsound and legally untenable. Only certified teachers should be admitted for training.

3. *The related fields of specialization of individuals selected for training in driver education should equip them to teach adequately the classroom phase of the program.* An analysis of the specializations of teachers already trained reveals wide variation. Although allowance must be made for individual differences, background training should be directly related to the content of driver education. The aptness of preparation in the fields of mechanical and industrial arts has been previously stated. Although this seems the most desirable combination, other possibilities should be considered. Cities requiring the services of a full-time teacher of driver education might well seek an individual whose major field of specialization is safety education. A teacher properly trained in the many aspects of public and school safety would be a valuable asset to both school and community. Thus far the practice of placing specialists in safety education in public school systems has not been widespread, despite the strong case that can be presented for the need. The increased acceptance of driver education and training in secondary schools may serve to provide an opportunity for more school systems to support the services of persons trained in safety education.

The desirability of combining driver education and training with physical education is open to question. The physical educator, with his specialized training in the teaching of motor skills, seems a logical expert to teach the skills of driving. Two limitations, however, are the unrelatedness of his preparation to the subject matter of driver education, and the usual heavy load and divergence of duties of the physical education teacher and coach in the average secondary school. If these limitations can be overcome, the physical education teacher may well be highly acceptable as a teacher of driver education and training.

4. *Those selected for preparation in driver training should possess particular physical and emotional qualifications.* Teachers selected for training should be required to meet the physical and emotional qualifications that they must expect of the pupils they will teach. Those certified or recommended by the course of training should pass the basic skills tests and psychophysical tests which are accepted standards for safe driving. Only the well qualified should be recommended.

5. *Adequate opportunities should be provided for mastery of the actual skills of driver training.* Only experienced drivers should be recommended for teacher training. The difficulty often arises, however, that experienced drivers have poor driving habits which are difficult to change. Sufficient behind-the-wheel instruction should be given so that the student teacher will not only learn the techniques of teaching driving skills, but will replace his own poor driving habits with acceptable practices.

6. *Opportunities should be provided for refresher courses and periodic retesting of driving instructors.* The physical defects which may result in poor driving, including failing vision, slowing reaction time, and other disabilities, may develop at any time. Instructors in driver training should be required to renew their licenses to teach at regular intervals. Such a requirement would necessarily be a state or local responsibility, but the college might well provide opportunities for retesting, and refresher courses for learning new techniques and reviewing old.

7. *The present temporary expedient of certifying teachers on the basis of one course should not be considered adequate preparation for teachers of driver education and training.* A careful study of the many facts of the area of driver education and training brings realization of the breadth of subject matter involved. For example, even a simplified knowledge of automotive mechanics requires much study. Highway engineering, with the many new types of traffic lanes and devices, is a technical subject of considerable scope. Likewise the economic and sociological implications of the automobile, on which one of every seven Americans depends directly for his livelihood, open whole areas of study. A single course in which one superficially grasps the contents of the textbook his secondary school pupils will use can hardly be considered adequate preparation. At least the equivalent of what is now generally considered a minor in a teacher-education program should become the basis for future certification of teachers of driver education.

8. *The need to develop major programs of teacher preparation in driver education and training on both a graduate and an undergraduate level should be explored.* The number of full-time positions for teachers of driver education, especially in large systems, is increasing. Those considerations emphasized in items 3 and 7 and discussed in light of the needs of the college instructor should likewise guide the major programs evolved.

9. *The instructor, materials, and equipment available for teacher preparation should be used for a general service course in driver education and training for college students.* The arguments in favor of driver education and training on the secondary school level extend equally to the undergraduate level in college. Students too young to take driver training in secondary schools or lacking the opportunity to do so are in need of this training as college students. Advance in this area is insignificant to date, but offers possibilities for development.

SUMMARY

The implications for teacher preparation in driver education supported herein may be summarized in the following statements:

1. No amount of technological advancement can materially reduce the traffic accident rate, unless it is accompanied by an effective program of public education.

2. An ever-increasing number of secondary schools, recognizing that they are in a unique position to offer much-needed education in this area, are providing courses in driver education and training.

3. If the secondary schools are to do an effective job in driver education and training, adequately prepared teachers are necessary.

4. While the private agencies have effectively pioneered in teacher preparation in driver education and training, the task logically belongs to the institutions specializing in teacher preparation.

5. The first step for colleges in meeting their responsibility to prepare teachers in driver education and training is to obtain qualified personnel to organize and conduct the programs.

6. The second step is to proceed to develop, in line with the basic considerations discussed above, interim programs for the immediate in-service training of teachers, and teacher preparation programs on the graduate and undergraduate levels with specialization in driver education and training.

Teachers College, Columbia University Register of Doctoral Dissertations

ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Volume 3, First Annual Supplement, 1947

Volume 1 of the *Register of Doctoral Dissertations*, covering the years 1899-1936, volume 2 for the period 1937-1941, and volume 3 for the period 1942-1946 may be obtained from the Bureau of Publications, Teachers College.

Annual supplements appear regularly in the March or April number of *Teachers College Record*, and a subject index is included every other year.

It should be noted that titles of dissertations not yet published are sometimes changed at the time of publication.

The *Register* does not include project reports submitted in partial fulfillment of requirements for the Doctor of Education degree. A separate *Register of Doctor of Education Reports*, Volume 1: 1935–March 1, 1945 and *First Supplement:* March 1945–December 1946 are obtainable from the Bureau of Publications, Teachers College. These are reprints from *Teachers College Record*, November and December 1945 and March 1947, respectively.

1. BAVLY, SARAH
   Family food consumption in Palestine; comparison of consumption by Jewish urban population in 1943 and 1946 and methods conducive to improvement of food selection. New York, Teachers College, 1948.
   In press.

2. DEEGAN, DOROTHY YOST
   The stereotype of the single woman in American novels; a social study with implications for the education of women.
   To be published.

3. DORMAN, HARRY GAYLORD
   Toward understanding Islam; contemporary apologetic of Islam and missionary policy. New York, Teachers College, 1948.
   In press.

4. ELLIS, ALBERT
   A comparison of the use of direct and indirect phrasing in personality questionnaires. Washington, American Psychological Association [1947] 41p. (Psychological monographs, v. 61, no. 3, whole no. 284, 1947)

5. EPSTEIN, BERTRAM
   Immediate and retention effects of interpolated rest periods on learning performance. New York, Teachers College, 1948.
   In press.

6. ESCALONA, SIBYLLE KORSCH
   An application of the level of aspiration experiment to the study of personality. New York, Teachers College, 1948.
   In press.

7. FOWLER, FRANK CHARLES
   Modern American dramatization.
   To be published.

8. GILLASPIE, BEULAH VESTA
   An analysis of unsolicited questions re-

ceived from consumers. New York, Teachers College, 1948.
In press.

9. HUNGERFORD, MARY JANE
Dancing in commercial motion pictures.
To be published.

10. KEET, CHARLES DOUGLAS
An experimental investigation of two verbal techniques in a miniature counseling situation.
To be published.

11. LOW, THEODORE LEWIS
Directions in the educational philosophy and practice of art museums in the United States. A study of the historical development of art museum philosophy; the current philosophy in theory and practice as seen in selected public museums with general historical collections; and recommendations for future fulfillment of educational aims. New York, Teachers College, 1948. 256p. [TCCE 942]*

12. MCMANUS, MRS. RACHEL LOUISE METCALFE
The effect of nursing experience on the complexity of mental processes. New York, Teachers College, 1948.
In press.

13. PREZEDPELSKI, BOLESLAW JOZEF
A study of agricultural extension education in Poland between two world wars 1918-1939.
To be published.

14. RICE, JESSIE PEARL
J. L. M. Curry—advocate of an enlightened citizenry.
To be published.

15. ROMNEY, MILES CONRAD
An appraisal of some of the possible effects of the educational finance bill of 1947 (S 472) upon the financing of education.
To be published.

16. RUDOLF, KATHLEEN BRADY
The effect of reading instruction on achievement in eighth grade social studies classes. New York, Teachers College, 1948.
In press.

17. SHRIMALI, KALULAL
The Gandhian plan of education for rural India.
To be published.

18. SMITH, ALDEN WALLACE
Undergraduate influences on post-graduation participation in organizations. New York, Teachers College, 1948.
In press.

19. STENDLER, MRS. CELIA ABBOTT BURNS
Children's awareness of the symbols of social class.
To be published.

20. TINKELMAN, SHERMAN
Difficulty prediction of test items. New York, Teachers College, 1948. 55p. [TCCE 941]*

21. WATSON, JACK MCLAURIN
The education of school music teachers for community music leadership; the opinions of school music teachers in South Carolina on their undergraduate college preparation. New York, Teachers College, 1948.
In press.

* TCCE = Teachers College Contributions to Education, published by the Bureau of Publications of Teachers College.

Recent Doctoral Studies

FURTHER EFFECTS OF ADDED THIAMIN ON LEARNING AND OTHER PROCESSES*

DURING three periods of time between May, 1941 and September, 1944 the effect was observed of supplementation of the dietary in an orphanage with 2 milligrams of thiamin daily per child. Thirty-seven to fifty-five carefully matched pairs of children living in the orphanage were used as subjects, one member of each pair receiving thiamin and the other member receiving an outwardly indistinguishable placebo. No participant in the experimental work, child or adult, had knowledge concerning the group to which any child belonged during the course of the experiments.

Measurements of performance included intelligence tests, educational achievement tests, tests of rote memory, tests of the retention of memorized material over long periods, reading tests, reaction time, visual acuity, and games of skill. Other measures, such as height and weight, were made regularly and the incidence of head colds during the experimental period was recorded.

In the first six weeks' trial of the thiamin supplement, with thirty-seven pairs of children serving as subjects, the thiamin-supplemented group made superior mean gains in performance in every one of the 18 test tasks. The individual variations of gain in each group were within the limits of probable error in the case of 7 of these tasks.

In the second period of observation, a trial period of one year, 15 activities were measured with fifty-five pairs of children acting as subjects. The thiamin-supplemented members of these matched pairs again surpassed the control members in mean gains in performance in every activity on the program of measurement. The superior gain of the thiamin-supplemented group of children was statistically significant for 8 of the 15 activities measured in the year-long trial.

In the third period of observation, the final year-long reversal trial period, twenty-seven pairs of children were continued through the second year with the same regimen of daily dietary supplementation as in the previous year, while twenty other pairs were so reversed in their grouping that those who had formerly received the thiamin supplement now received a daily placebo, and vice versa.

The pairs of children whose order of thiamin supplementation was maintained unchanged throughout the two years continued to demonstrate superior gains in average performance on the part of their thiamin-fed members in all the test tasks on their program of measurement.

The other pairs of children, whose daily thiamin supplements were reversed between them at the end of the first year of observation, demonstrated reversals of superior mean gain in 8 test tasks, such as memorizing rote material, code substitution, vis-

*By Ruth Flinn Harrell. Bureau of Publications, Teachers College, Columbia University, 1947. This study supplements the research reported by the author in her doctoral dissertation, *Effect of Added Thiamin on Learning*, Contributions to Education, No. 877, published by the Bureau of Publications in 1943.

ual acuity, and remembering learned items. Adverse effects of the withdrawal of the daily thiamin supplement failed to show, however, in the intelligence tests, educational tests, tests of reaction time, and in measures of height and weight.

It is clear from these studies that the results of thiamin supplementation are not sufficient to be observable over short periods of time in all measures of performance. The cumulative effects throughout a lifetime may, nevertheless, spell the difference between alert, successful living and a marginal effectiveness.

CONTROLLABLE COMMUNITY CHARACTERISTICS RELATED TO THE QUALITY OF EDUCATION*

THERE is no school in existence which exemplifies all that is known about how good a school can be. Schools vary widely in the quality of education they provide. Some are no better than those of fifty years ago, while even the best school utilizes only a fraction of the know-how available for making schools better. Research reveals a half-century span between the introduction of a new or an improved educational practice and its diffusion throughout the schools of a large area. The average school may be said to be almost a half century behind the growing edge of education. The discovery of ways to reduce the gap between best practice and common practice is one of the greatest tasks facing education. This is particularly important in view of the fact that our increasingly complex society struggles with maladjustments which threaten its stability and direction unless, according to many, a more effective education is made available to our people.

This study seeks to throw light on why schools lag. One of its two major purposes is to discover the extent to which differences in the quality or adequacy of education in various schools may be related to differences among the communities in which the schools function. The second major purpose is to suggest ways in which knowledge gained regarding this relationship may be used to reduce the fifty-year lag in the spread of educational adaptations.

Three sets of measures were selected for this analysis. They comprise a total of twenty-four separate factors by which communities can be objectively measured to show how they differ. In addition, a measure of the quality of education in the schools of each community was obtained. The first set of factors may be described as indicating good will toward education, and includes measure of the educational level of the community, occupational level, and factors working to broaden the public mind with reference to education. The second group consist of factors described as conditioning the expression of good will and understanding of education. These factors fall into three subgroups: trends in community prosperity, wealth and tax burden, and universality of immediate interest in schools and taxes. The third group is community understanding of what schools can do.

Sixty-odd communities were scored on each of the twenty-four separate measures and these were combined into three group scores and finally a single score combining all measures. All these scores were subjected to a variety of statistical analyses to ascertain their relationships to the goodness of schools.

The results of these analyses indicated a significant correlation between a number of the separate measures and the quality of education. The single score of community

*By TRUMAN M. PIERCE, Ph.D. Teachers College, Columbia University, Metropolitan School Study Council, Research Studies, No. 1.

factors revealed a correlation of .8 with the measure of the quality of education. In short, it was found possible to predict 64 per cent of the variation among the schools by use of the twenty-four community factors employed in the study. Thus, the community appears to be extremely significant as a conditioner of its schools; or perhaps a better way to express it would be to say: to a great extent the school is an expression of the community.

This important relationship suggests that one possibility for improving schools would be through increasing community potential to produce education by guiding community change into directions of community improvement in factors known to be highly related to good schools. This suggests a comprehensive community analysis for the purpose of understanding the present community setting for schools and for ascertaining the direction in community trends. A follow-up step to this study would be charting a course for controlling community change by means of sound community planning. Zoning is stressed as one specific means of channeling community change into desirable directions.

Another means of apparent significance for improving schools is through raising public understanding of what schools can do. This factor appears to be relatively independent of others employed in the study and thus might not be considered an outcome or a cause of other characteristics in community change which may favorably influence schools. Apparently, the factor of good will and understanding may be influenced without reference to community standing in other factors of potential for producing good education. Available evidence indicates that improved understanding comes as a result of closer cooperation between the school and the community. This may involve laymen and professional people working together in studying the school, its problems, its needs, and how to meet its needs.

This study strongly indicates the importance of local autonomy and local initiative as factors to be considered in making schools better. It thus has implications for setting up school districts, relation with central authorities, and for the functions of school administrators. It places great responsibility on the local school administrator for understanding his community and for community leadership. It may even indicate that his most important job is working with his community.

CHILDREN'S CONTRIBUTIONS IN SCIENCE DISCUSSIONS*

A CONSIDERATION OF CHILDREN'S VERBAL RESPONSES IN RELATION TO CERTAIN OBJECTIVES FOR SCIENCE INSTRUCTION

AFTER a period of years, the work of educators interested in science instruction in the elementary schools has resulted in a statement of certain objectives. It was the purpose of this study to investigate some of these objectives with regard to their appropriateness for young children. The verbal responses of children in grades one through six were studied.

An analysis was made of the objectives for science teaching in the elementary schools which were listed in the report, "A Program for Teaching Science" (1932), of the Committee on the Teaching of Science of the National Society for the Study of Education. On the basis of this analysis, twelve categories were devised to represent the accepted objectives. Each was defined in terms of the type of responses which could be classified under that particular category.

*By KATHERINE E. HILL, PH.D. Teachers College, Columbia University, Contributions to Education, No. 931.

The school selected for the study was one in which the teachers accepted the objectives under consideration and had done so for at least eight years. One hundred forty-three children in six grades participated in the study. One class at each of the six grade levels was used. A total of thirty-two records for each of the six grades was obtained.

Two methods were used in collecting the data. The first was to classify each response made by a child in one of the twelve categories representing the accepted objectives, or in a thirteenth category, Miscellaneous. The second method used was the recording of remarks verbatim when time permitted.

An analysis of the classified responses was undertaken in order to determine the appropriateness of the objectives as teaching goals. One measure of appropriateness was whether or not children's natural contributions in a science discussion were related to the objectives. It was found that responses made in each of the six groups could be classified as representing each of the objectives. In addition, it was found that the greatest number of responses were classified as representing four of the objectives related to problem solving. It seems, then, on the basis of this analysis, that the objectives studied are appropriate in that children are able to respond to them.

Another basis for judging the appropriateness of the objectives was that of investigating the relative excellence of the remarks of children at the first and sixth grade levels. Since a large number of responses had been recorded verbatim, responses representing only the five objectives directly related to problem solving were used. Criteria were devised to define "goodness" of responses in relation to these objectives. First grade and sixth grade remarks were then presented to three judges, who ranked each remark in the five sets of responses in order of excellence. An examination of the ranked responses revealed that each of the judges consistently judged the majority of the sixth grade remarks as better than the majority of the first grade remarks. Remarks of older children seemed to be more discriminatory than those of younger children. Those made by older children more often involved more than one idea, with a consequent comparison of these ideas.

IMPLICATIONS FOR THE CURRICULUM

The findings of this study may hold particular interest for two groups—those interested in science instruction in the elementary school and those interested in the general curriculum of the elementary school.

1. The objectives studied seem, on the whole, appropriate as goals in elementary school science instruction. Few responses were classified under Recognition of Achievements of Thinking. Perhaps this indicates that this particular objective may be more appropriately held for junior or senior high school teaching. Since more responses were made pertaining to Responsibility and Cooperation, Initiative, Application of Experience, and Skills when experimental materials were being used, it might be well to urge that children be allowed to engage in activities making use of such materials. It is, however, in no way suggested that children be deprived of carrying on a thought-provoking discussion or a reading-discussion type of activity. It is suggested that all these activities be used.

2. No progress was indicated in regard to the objectives studied so far as increase in number of responses, from one age level to another, was concerned. Recognizable differences were found, however, in the remarks related to problem solving. The investigator has presented certain criteria for the "goodness" of responses which might be related to these problem-solving objectives. It is suggested that all the objectives listed in this study be redefined by sets of criteria which would give some consideration to relative excellence of responses to be expected at various age levels.

3. It was found that even the youngest

children were capable of questioning, of identifying, of speculating, of recognizing causal relationships, and of drawing conclusions. It is, therefore, suggested that children be allowed to make use of these abilities in many classroom experiences. It is the opinion of the investigator that these abilities should be encouraged not only in relation to science experiences but in relation to thinking in any area of endeavor.

ONE-STEP PROBLEM PATTERNS AND THEIR RELATION TO PROBLEM SOLVING IN ELEMENTARY ARITHMETIC*

TEACHERS and supervisors are generally agreed that to teach pupils to solve verbal problems in arithmetic is a difficult task and that the results of such instruction are usually unsatisfactory. The present study suggests a new attack on the teaching of problem solving by classifying one-step problems in terms of a limited number of one-step thought patterns.

A one-step problem is one to which the answer can be obtained by performing a single operation of addition, subtraction, multiplication, or division. A two- or three-step problem requires the performance of two or three successive operations respectively in order to obtain the answer. To solve a three-step problem one has to solve three one-step problems, hence the one-step problem is of basic importance in the solution of all problems.

A one-step thought pattern represents a large group of one-step problems and is illustrated by the following problem: "Joe has 30¢. Mary has 25¢. How many more cents has Joe than Mary?" In this problem two unequal amounts are given which are to be compared by finding *how much more* one amount is than the other. Many variations of this problem are possible but the thought pattern in each is the same, namely, the comparison by subtraction of two unequal amounts to find *how much more* or *how much less* one amount is than the other.

The main task of this study was to analyze about 15,000 verbal problems in arithmetic with respect to the one-step thought patterns involved. These problems, with minor exceptions, represented all the verbal problems in four series of widely used arithmetics covering grades three to six inclusive. The more important findings were as follows:

1. Critical analysis of these 15,000 problems showed that all of them could be classified under 38 different one-step thought patterns, of which 4 were in addition, 10 in subtraction, 8 in multiplication, and 16 in division.

2. There was a wide variation among the authors of the texts studied in their grade-by-grade treatment of the thought patterns. Certain patterns were neglected while others were emphasized.

3. On the basis of the total number of repetitions of the thought patterns in all four grades combined, there was close agreement among the authors.

4. On the basis of the total repetitions of the thought patterns in all four grades combined, the multiplication patterns ranked first in frequency, the division patterns second, the subtraction patterns third, and the addition patterns fourth. This was true in each of the four series of arithmetics.

The implications of this study for the teaching of problem solving are evident. If pupils are made familiar with each thought pattern by solving a wide variety of problems representing that pattern, it seems reasonable to assume that the ability to solve verbal problems in arithmetic will be much improved. The thought patterns can be of

*By ETHEL SUTHERLAND, PH.D. Teachers College, Columbia University, Contributions to Education, No. 925.

service to teachers and authors as guides in selecting verbal problems for teaching purposes, or in checking problems in textbooks and standardized tests to see that important types of quantitative thinking are not neglected.

EDUCATIONAL PHILOSOPHY AND PRACTICE OF ART MUSEUMS IN THE UNITED STATES*

PART I of this study traces the historical development of the educational philosophy of art museums from 1870, when the first great public museums were founded, to the present day. Source material includes charters, acts of incorporation, and the writings of museum presidents, trustees, directors, curators, educators, and related leaders in the fields of education and art. Although most charters and acts of incorporation stressed the educational character which the new institutions were to have, it is demonstrated that this goal was eclipsed for many years by practical matters involved in fund raising and collecting. Shortly after the beginning of the twentieth century, education, in an active sense, began to find its place in museum programs. Today some leaders in the field are asserting their belief that the primary function of museums is education. Coupled with this belief is the conviction that the content of the education which art museums impart should be expanded to embrace the study of man. Thus "culture history" rather than art history and aesthetics becomes the ideal of these spokesmen.

The second part of the study brings to light current opinion and practice, placing them in juxtaposition with the ideas expressed by the spokesmen in the preceding section. Current opinion was secured through the use of a questionnaire sent to directors of art museums with historical collections in cities of 200,000 or over. Replies to the questionnaire indicate, in general, that the majority of directors do not subscribe to belief in the dominance of education, nor do they share in the demand for an emphasis on culture history. For the most part, present directors believe in an equal, tripartite division of function in museums among "collecting and preserving, the advancement of knowledge, and the diffusion of knowledge."

Educational practice, however, reveals a growing tendency to place more and more weight on the educational function so that the three functions mentioned are often no longer equal in actuality. Great strides have been made in recent years in the development of educational techniques. This is particularly true in terms of work done with school classes as well as in methods of exhibition and in the writing of popular publications. Many examples of these advances are discussed.

Part III embodies recommendations for a revitalized museum philosophy and for immediate steps which can be taken to put that philosophy into practice. Particular stress is laid on the need for a broader training of museum personnel. In terms of programs, emphasis is placed on the work which museums might do as leaders in the field of adult education. Suggestions for future policy and practice are discussed under the following headings: educational staff and its training, the museum's public, instruction, exhibition, publication, extension, related activities, and sociological and psychological research.

* By THEODORE LOW, PH.D. Teachers College, Columbia University, Contributions to Education, No. 942.

Departmental Notes

Board of Trustees of Teachers College

FOUR new appointments, twelve promotions, twelve leaves of absence, and one resignation were passed upon at the meeting of the Board of Trustees on Wednesday, February 11.

New members of the faculty include two professors of education, Martin P. Chworowsky, Ph.D., from February 1, 1948, and Bayard Dodge, D.D., LL.D., as Visiting Professor for the 1948-49 Spring Session. Howard F. Fehr, Ph.D., was named Professor of Mathematics, effective September 1, and Paul H. Davis was appointed General Secretary of the College, effective February 1, 1948.

Promotions from Associate Professor include Natalie K. Fitch, Ph.D., to Professor of Home Economics; Clara M. Taylor, Ph.D., to Professor of Nutrition, and Robert L. Thorndike, Ph.D., to Professor of Education.

Assistant Professors who were promoted include Ruth Cunningham, Ph.D., to Associate Professor of Education; Hubert M. Evans, Ed.D., to Associate Professor of Natural Sciences; Nicholas Hobbs, Ph.D., to Associate Professor of Education; Aileen T. Kitchin, Ph.D., to Associate Professor of English; Alice M. Miel, Ed.D., to Associate Professor of Education, and Jane D. Zimmerman, Ph.D., to Associate Professor of Speech.

Dorothy Wilson, Ed.D., and Margaret M. Adams, A.M., are both advanced from Instructors to Assistant Professors of Nursing Education, and Chandos Reid, Ph.D., Research Associate in the Horace Mann-Lincoln Institute, becomes in addition Assistant Professor of Education. All promotions are effective July 1, with the exception of Dr. Wilson's, effective February 1, 1948.

Leaves of absence for the academic year 1948-49 were granted to Professors Arthur T. Jersild, Lilla Belle Pitts, Ralph B. Spence, and Alice W. Spieseke. Professors Willard S. Elsbree and Irving Lorge were granted leaves for the Winter Session, 1948-49, while Professors Edmund deS. Brunner, Raymond Burrows, R. Freeman Butts, Harry D. Kitson, Magdalene E. Kramer, and S. Ralph Powers were granted leaves during the Spring Session, 1948-49.

The resignation of Thelma Potter, Ph.D., Assistant Professor of Education, was accepted with regret, effective January 31.

Office of the Dean

TEACHERS College alumni were honored with the presence of Acting President Frank D. Fackenthal of Columbia University at the annual alumni dinner held in Atlantic City on February 24 at the Hotel Traymore. Five hundred and seventy-five graduates and friends of the College heard President Fackenthal greet them in the name of the entire University and stress the important role Teachers College has played and will play in the development of Columbia. Dean William F. Russell addressed the gathering on the traditions of Teachers College, pointing out that the institution was founded on a grass roots ideal of teaching people to live better lives and that the faculty and students must never lose sight of this basic premise underlying all of the work of the College. Dr. Abel Hanson (Ed.D. 1941), superintendent of schools in

Elizabeth, N. J., was toastmaster, and guests of honor included Mr. Paul H. Davis, general secretary of the University, M. René de Messières, cultural counsellor of the French Embassy in New York, and Dr. Herold Hunt (Ed.D. 1940), general superintendent of schools in Chicago.

At the Phi Delta Kappa annual luncheon also held in the Traymore, Dean Russell spoke on "The True Relation of Education to War and Peace." The Dean urged a worldwide organization of teachers, free from political interference, to see that the schools continue to serve the cause of peace.

Institute of Studies of Comparative Government and Education

To commemorate the centenary of the Revolution of 1848, the Société d'Histoire de la Révolution Française of New York, of which Professor Boris Mirkine-Guetzévitch is president, sponsored a meeting in the Horace Mann Auditorium February 27. Dean William F. Russell, vice-president of the Société, presided at the session. Speakers included Professors Jean-Albert Bédé of Columbia, Crane Brinton of Harvard, Gilbert Chinard of Princeton, René de Messières of Wellesley (cultural counselor of the French Embassy), Henri Peyre of Yale, and Professor Mirkine.

Horace Mann-Lincoln Institute of School Experimentation

A series of four articles on the implications of the child development approach to education by Professor Arthur T. Jersild will appear in the *Journal of the National Education Association*. The first, "Child Development and the Curriculum," was a feature of the February issue.

At the request of AMG, Professor Jersild has prepared a paper on the present status of child psychology in the United States for publication in a special American issue of the Japanese *Jido Shucri* (Child Psychology). A translation will also appear in *Die Amerikanische Rundschan* for German readers.

Division I

Foundations of Education

SOCIAL AND PHILOSOPHICAL FOUNDATIONS

THE role of the busy traveller was enacted by Professor George S. Counts in January. "Soviet Education and Its International Significance" was his topic on January 12, when he addressed students at Lehigh University and the Foreign Policy Association of Bethlehem, Pa. On January 19 and 20, he addressed meetings of university students, teachers, and parents in Toronto and London, Ontario, Canada, on "Recent Changes in Soviet Education," "Education for Democratic Living," and "New Educational Horizons." "Are the Colleges Doing Their Job?" was the subject of Professor Counts, President Harry D. Gideonse of Brooklyn College, and Dr. Ordway Tead, chairman of the City Board of Higher Education, in a radio discussion January 22. An all-day meeting in Washington of the American Federation of Teachers' Commission on Educational Reconstruction was his destination January 25. His final stop for the month was Baltimore, where he addressed a special institute for public school teachers on "Educational Implications of the Current Social Scene," and participated in an evening television program on the general topic of education, on January 30.

As a member of the newly-formed Committee on the International Exchange of Persons, set up to implement the Fulbright Act in the sphere of post-doctoral personnel and projects, Professor Counts attended the organizational meeting in Washington February 11.

AMONG divisional members attending and participating in the AASA meetings in Atlantic City the last of February were Professors Counts, Harold O. Rugg, R. Bruce Raup, Lyman Bryson, and R. Freeman Butts.

The first section of the February 23 morning meeting of the National Society of College Teachers of Education, entitled "Social Foundations of Education: History and Philosophy of Education and Educational Sociology," heard a committee of educators including Professors Counts, Raup, and Rugg.

Professor Rugg aided in the presentation of the subject in a discussion group, "Citizenship Education in a Divided World," February 23, and was in another group considering "Research on the Curriculum" February 24 for the American Educational Research Association of the NEA.

The seventh general session on February 25 was highlighted by an address by Professor Bryson, "How Good Are the New Tools for Teaching?" He also spoke on "Secondary Education for Tomorrow's Youth" February 21 at the annual banquet of the NASSP.

On February 24, Professor Butts was chairman of the panel of a special meeting on the history of education.

"CONFLICT in the Far East" was Professor Donald G. Tewksbury's subject February 9 when he spoke before the Mary Clap Wooster Chapter of the D.A.R. in New Haven, Conn.

PSYCHOLOGICAL FOUNDATIONS AND EDUCATIONAL RESEARCH

ON February 3, Professor Arthur L. Gates addressed the dinner session of the annual reading conference at Temple University, Philadelphia.

A paper based on an analysis of the procedures used in 20 type B Doctor of Education projects entitled "Utilizing Research in Making Practical Decisions" was read by Professor Percival M. Symonds at the February 23 meeting of the American Educational Research Association in Atlantic City. Professors George W. Hartmann and Robert L. Thorndike participated in the Association's meetings February 24, and Professor Helen M. Walker spoke on "Statistical Understandings Every Teacher Should Have" the same day at a joint meeting with the National Society of College Teachers of Education.

VICE-president of the American Educational Research Association for 1948-49 is Professor Walker.

Division II

Administration and Guidance

EDUCATIONAL ADMINISTRATION

FEBRUARY 21 to 26 found the members of the department at the national convention of the AASA in Atlantic City. The convention's theme was "The Expanding Role of Education."

The discussion session audience on February 25 heard Professor John K. Norton speak on "Issues in Federal Aid Legislation," while Professor Paul R. Mort addressed another group on "The Superintendent and Effective Public Relations." Professor Edward S. Evenden, chairman of the committee on standards and surveys this year, reported on two special studies made for the AASA, "A Quarter Century of Standards" and "The Control and Support of Teachers Colleges." Professor Willard Elsbree discussed "Education as a Profession" before the section on school organization and administration of the National Society of College Teachers of Education.

Professor Francis L. Bacon's schedule included speaking to the National Society for the Study of Education on February 21; presiding over a discussion program on

"Pupil Personnel" at the National Association of Secondary School Principals' meeting, and over the annual meeting of the state coordinators of NASSP, February 23, and conducting the superintendents' meeting on "Pros and Cons of Universal Military Training" February 25. Professor Paul Essert was a member of two discussion groups—"The Superintendent Shares with Teachers and Others in Planning Programs and Policies," February 23, and "Adult Education and the Community," held on February 25.

At the joint conference on February 21, sponsored by the Council on Cooperation in Teacher Education, Professor Karl W. Bigelow spoke on "International Aspects of Teacher Education." He also participated in a discussion on "Higher Education" February 24. "Defining a Good School District" was Professor Frank Cyr's topic in a discussion group February 24 on Reorganization of School Districts. He also commented on "The Responsibility of the Community for Its Educational Program" February 23, and on "School Transportation" February 25 in connection with the AASA Department of Rural Education meeting.

Professor Emeritus Thomas H. Briggs spoke on "The Role of General Education" in connection with the National Association of Secondary School Principals meeting in Atlantic City February 23.

As laureate counselor, Professor Evenden attended the convocation of Kappa Delta Pi at Atlantic City February 24 to 26.

On February 16 and 17, Professor Elsbree was in Wilmington, Del., where he is consultant to the personnel committee of the self-survey of the local public school system.

Professor Bacon attended a meeting of the Headmaster's Association at the Westchester Club, Rye, N. Y., February 12 and 13.

GUIDANCE

An overview of the 1948 Yearbook of the National Society for the Study of Education, entitled "Delinquency and the Schools," was given by Professor Ruth Strang at the Atlantic City meetings February 23. At the morning meeting of the American Educational Research Association on the same day, she read a paper on "Principles of Readability for Research Reports."

Division IV

Instruction

CURRICULUM AND TEACHING

Associate Dean Hollis L. Caswell was one of the main speakers at the national ASCD convention which began February 15 in Cincinnati.

Two meetings at the Atlantic City convention claimed Professor Gordon N. Mackenzie's attention. He participated in the discussion group February 25 on "Visual Aids to Teaching," and in the February 24 section of the National Society of College Teachers of Education's conference entitled "Curriculum Instruction and Supervisory Activities: What Should the Student Learn About Curriculum Development?"

At the first convention of the Association of Private Camps in the Hotel New Yorker February 12, Professor Roma Gans denounced awards as sounding the "death knell of camp life" for many children. She participated in a panel discussion, "Make the Program Fit the Camper."

MATHEMATICS

At the spring conference in the Chapin School April 13, Professor William D. Reeve addressed members of the mathematics

group of the Association of Private School Teachers on "Recent Trends in Mathematics Education."

He was also toastmaster at the annual banquet in the Hotel Claypool in Indianapolis April 3, held in connection with the meeting of the National Council of Teachers of Mathematics.

MUSIC EDUCATION

At the sixth general session of the AASA meetings in Atlantic City, Professor Emeritus Peter W. Dykema was guest conductor of the Atlantic County Elementary School Chorus and Atlantic City High School Glee Club and Chorus.

An article devoted to piano teaching procedures developed at Teachers College by Professor Raymond Burrows and other members of the staff appeared in the March issue of *Good Housekeeping* magazine. Written by George Marek, the article is entitled "New Ways of Piano Teaching."

A piano recital in Philadelphia was given by Professor Burrows on February 22 and a two-piano performance with Professor Anthony Loudis of the University of Delaware, in Staten Island on February 29.

HOME ECONOMICS

Professor Helen Judy-Bond attended the meetings of the NEA in Atlantic City February 20 and 21, and the AASA later in the week. She also attended the regional meeting of the American Social Hygiene Association early in February as a member of the education committee.

At the annual conference of the New York Tuberculosis and Health Association in the Hotel Pennsylvania, New York, March 9, Professor Bond discussed "Preparation for Marriage and Family Living" for college students.

Representative of the department at the meeting of the American Vocational Association in Washington the week of February 16 was Professor Laura Drummond.

Professor Orpha Mae Thomas was a speaker at a Food Institute in Philadelphia February 13, sponsored by the Hospital Council of Philadelphia, the Hospital Purchasing Services of Pennsylvania, the Philadelphia Dietetic Association, the Philadelphia Hospital Association, and the Philadelphia Hospital Buyers' group. Her topic was "Controlling Food Costs in Hospitals."

BUSINESS AND VOCATIONAL EDUCATION

A survey of the curriculum of the Trade School in Springfield, Mass., is being directed by Professor Hamden L. Forkner.

Division V

Nursing Education

The grant of $5230 from the National Foundation for Infantile Paralysis is being used chiefly in a course on advanced orthopedic nursing directed by Miss Jean Hill. Of the students in this program, two are on scholarships from the Foundation. Mrs. Doris Miller, on a fellowship, is developing a course in physics for nurses as applied to orthopedics, in connection with the program.

As a representative of the Association of Collegiate Schools of Nursing, Professor Virginia Henderson attended the annual meeting of the American Council on Education in Washington January 23 and 24.

Upon the invitation of the faculty, two representatives from the student body of nursing education have been elected to serve on each of the Division's standing committees: curriculum, orientation, scholarship and loan, library, publicity and

public relations, hospitality and social, and alumnae.

SPEAKERS at the January 27 meeting of the Hudson Valley League of Nursing Education in Albany were Professors Helen S. Storen and Frances Reiter.

A two-day conference in Washington January 19 and 20 on the maternal and child care program of the Children's Bureau was attended by Professor Reiter, Mrs. Margaret Adams, and Miss Hattie Hemschemeyer.

"WHERE Is that Nurse?—Here Is the Answer" was the topic of Miss Peggy E. Kakosh at a meeting of the committee on nursing of the New York Academy of Medicine Society February 5.

Office of Field Relations and Placement*

The following list continues the appointments of Teachers College Alumni reported for February in the March *Record:*

Earle, Alice M. (A.M. 1936), teacher of fifth grade, North Roslyn School, Roslyn, N. Y.

Ellison, Alfred, principal and director of music, Workshop School, New York, N. Y.

Farmer, Ray (A.M. 1938), teacher of economics, New Mexico Highlands University, Las Vegas, N. M.

Feyereisen, Kathryn V. (A.M. 1943), assistant professor of education, Wayne University, Detroit, Mich.

Fitz Patrick, Robert (A.M. 1947), instructor in social studies, High School, Farmingdale, N. Y.

Fulton, Harriet (A.M. 1943), assistant professor of voice, Gustavus Adolphus College, St. Peter, Minn.

George, Otto L., instructor in history, St. Lawrence University, Canton, N. Y.

Gleason, Ethel H. (A.M. 1947), kindergarten teacher, Bentley School, New York, N. Y.

Gordon, Henrietta (A.M. 1938), lip reading instructor, Veterans Administration, New York, N. Y.

Groner, Dorothy M. (M.S. 1947), nutritionist-in-training, State Department of Health, Albany, N. Y.

Guy, Jack Gill (A.M. 1947), head basketball coach, Bucknell University, Lewisburg, Pa.

Hamel, Mary Lou (A.M. 1946), teacher of special seventh grade, High School, Monticello, N. Y.

Hassell, Conchita Munoz (A.M. 1947), instructor in Spanish, Adelphi College, Garden City, N. Y.

Hawkins, Helen H. (A.M. 1947), teacher of third grade, W. C. Chance High School, Parmele, N. C.

Healy, Harold Elton (A.M. 1946), teacher of mathematics and science, High School, Middletown, Conn.

Hebbard, Mabel Husted (A.M. 1947), teacher of music, New York Institute for the Blind, Bronx, N. Y.

Helin, Eero Robert (A.M. 1947), teacher of physical education and coach, High School, Marshfield, Mass.

Hopkins, Barbara J. (A.M. 1946), instructor in physical education, University of Illinois, Urbana, Ill.

Horne, Ethel (B.S. 1947), public health staff nurse, New Haven Visiting Nurse Association, New Haven, Conn.

Horning, Ralph V. (A.M. 1940), head of music department, Eastern Oregon College of Education, La Grande, Ore.

Hryz, Mary Anna (M.S. 1943), dietitian, Evans Hall, Carleton College, Northfield, Minn.

Jackson, Armand E. (A.M. 1947), assistant professor of music, Jamestown College, Jamestown, N. D.

Jacobs, A. Gertrude, instructor in physical education, High School, Teaneck, N. J.

Jancu, Florence D. (A.M. 1946), librarian assistant, Health Insurance Plan of Greater New York, New York, N. Y.

Jeffords, Dexter M. (A.M. 1947), unified studies teacher and research librarian, High School, Oak Ridge, Tenn.

* Any student who is taking or has taken twelve points of work at Teachers College or any graduate of Teachers College may register with the Office of Field Relations and Placement. For initial registrations covering three years, no fee is charged. For information write to the Placement Office for its booklet, *Employment of Teachers and Administrators.*

Kessner, Robert Herman, counselor of men, Florida State University, Tallahassee, Fla.

King, Muriel (A.M. 1944), teacher of mathematics, Randolph County Training School, Roanoke, Ala.

Klann, Corinne (A.M. 1947), supervisor of vocal music, Public Schools, Mount Vernon, Wash.

Konopka, Jeannette F. (A.M. 1947), instructor of nursing arts, West Jersey Hospital, Camden, N. J.

Kramer, R. Anne (A.M. 1947), co-director of nursery school, Woodycrest Nursery School, Tulsa, Okla.

Landgraf, John F. (A.M. 1941), teacher of commercial education, Montclair High School, Montclair, N. J.

Langley, Elizabeth Gall (A.M. 1941), first grade critic teacher, State Teachers College, New Paltz, N. Y.

Lapeyre, Gretchen R. (A.M. 1933), teacher of history, High School, Baggs, Wyo.

Lauziere, Maurice H., teacher of French and Spanish, Franklin School, New York, N. Y.

Leiter, Lloyd G. (A.M. 1946), assistant professor of engineering drawing, Bowling Green State University, Bowling Green, Ohio.

Marks, Emma Reddick (A.M. 1944), assistant nursery school teacher, Howard University, Washington, D. C.

Marshall, Harvey T. (A.M. 1947), director of music, Union High School, Mantoca, Calif.

Meno, Lionel W. (A.M. 1947), principal, Frederick Harris School, Springfield, Mass.

Mish, Helen E. (A.M. 1931), assistant professor in English, Hanover (Ind.) College.

Moon, Donald Elwin (A.M. 1947), instructor in industrial art, Homeville Junior High School, Terrace, Pa.

Moore, Ouida (A. M. 1946), assistant professor of home economics, Alabama College, Montevallo, Ala.

Moorman, Robert (A.M. 1947), assistant professor in English, Georgia Teachers College, Collegeboro, Ga.

Morgenweck, Alfred F. (A.M. 1947), assistant director of physical education, YMCA, Bedford Branch, Brooklyn, N. Y.

Mummery, Dorothy V. (A.M. 1930), associate professor of child development, University of Georgia, Athens, Ga.

Mungenast, William J., teacher of history, Grover Cleveland High School, Caldwell, New Jersey.

Myers, Marianna, teacher of music, Southbury Training School, Southbury, Conn.

Nelson, Charles R. (A.M. 1943), elementary coordinator, County Schools, San Diego, Calif.

Owens, Clyde, instructor in music, City Schools, Wilkes Barre, Pa.

Page, Verna Louise (A.M. 1944), teacher of commercial education, High School, Stockton, Calif.

Palma, Emma Frances (A.M. 1947), teacher of art, Long Beach East and West Schools, Long Beach, N. Y.

Parker, J. Cecil (Ed.D. 1942), associate professor of education, University of California, Berkeley, Calif.

Parrish, Irene Marian (A.M. 1947), group teacher of four year olds, Parkway Nursery, Chicago, Ill.

Parsons, Thelma H., teacher of second grade, Hutchinson School, Pelham, N. Y.

Petrullo, Marie G. (A.M. 1946), teacher of music, Bay Ridge High School, Brooklyn, N. Y.

Pollock, Jean F. (A.M. 1947), professor of physical education, Cedarville College, Cedarville, Ohio.

Purcell, Florence, teacher of English, Sewanhaka High School, Floral Park, N. Y.

Rand, Elgah Ruby (A.M. 1947), assistant kindergarten teacher, Greenwich House, New York, N. Y.

Reid, Eileen M. (A.M. 1947), assistant chief dietitian, United States Marine Hospital, Staten Island, N. Y.

Renfro, Richard M., assistant professor of music, University of Wyoming, Laramie, Wyo.

Riblinger, Eunice A., teacher of English and French, High School, Fort Lee, N. J.

Risinger, Opal A. (A.M. 1944), research in special classes, Public Schools, Phoenix, Ariz.

Robbins, Sonya, kindergarten teacher, Nicholai Street School, Hicksville, N. Y.

Rogers, Paul W. (A.M. 1940), instructor in music, State Teachers College, Oswego, N. Y.

Russell, Olive Ruth, associate professor of psychology, Winthrop College, Rock Hill, S. C.

[*Continued in May* RECORD.]